RAILROAD GAZETTE

FRIDAY, APRIL 14.

Contributions.

Exhortations to Vigilance.

TRENTON, N. J., April 5, 1882.

TO THE EDITOR OF THE RAILROAD GAZETTE:

I have frequently of late read with interest articles in your columns bearing information and suggestions that should, and doubtless have, conduced greatly to the successful management of railroads generally; and the subject being one of such universal interest and import, I am constrained to believe that were we all to contribute from time to time what hints our observations prompt, journeys by rail might be attended with a more certain degree of safety.

Recently, during a business transaction with the New York City & Northern Railroad, I observed an example well worthy of comment, if not of imitation, by others. In the course of my rounds I came in contact with a bulletin board for conductors and engineers of that road, upon which were clippings from the press of accidents on other roads, with short but earnest admonitions against similar negligence attached, which evidenced that the idea conveyed was to profit by others' mishaps, rather than learn in the severe school of personal experience, and interspersed among current instructions were conspicuously posted such remarks as:

"Safety first, then speed."

"Credit marks are awarded in proportion to judgment used rather than from other considerations."

"Make time, but not at the sacrifice of safety."

"Take nothing for granted."

"Trains are not run on supposition," etc., etc.

The object of the entire sentiment was evidently to imbue all with a keen sense of their fallibility, and is embraced in the following, which is verbatim:

"TO CONDUCTORS AND ENGINEERS:

"I wish to caution you against feeling 'too easy' as to safety, etc. We have been so very successful that instead of relaxing in the least, we must (if possible) be more vigilant, and guard against getting into the common rut of *thinking* that 'everything is all right.' It is late to awake to the great need of perpetual watchfulness after something has happened. I have as much confidence in you now as ever, and believe that no body of men has been more implicitly trusted than you (which credit belongs entirely to yourselves), but we are all human, and unless we keep up a ceaseless lookout something may happen to put us all in gloom.

"(Signed) Yours truly, F. S. GANNON,
"Gen. Supt."

Upon inquiry as to the result of these upon the employés, I found that although there have been constantly from three to seven construction trains at work, as well as about forty regular trains daily, since the road was opened up for business last May, there has yet to be the first accident, which proves that by appealing to their judgment and constantly impressing men with the responsibility intrusted them, and extending a disposition to avert their danger, you strike a responsive cord and inspire a sense of zeal approaching rivalry among them. Do you not agree?

AN OBSERVING TRAVELER.

Transportation in Congress.

In the House on the 7th:

Mr. Washburn, of Minnesota, submitted the conference report on the bill to authorize the construction of a bridge across the Missouri River within five miles of St. Charles, Mo., and it was agreed to.

The House Committee on Commerce made favorable reports on bills for bridges over the Mississippi at New Boston, Ill., and over the Missouri at a point in Monona County, Ia., which is south of Sioux City.

The House Committee on Pacific Railroads has decided to report to the House with a favorable recommendation a bill authorizing the consolidation of railroad lines not parallel or competing; several of the members reserved their right to oppose the bill when it comes before the House with an amendment, the substance of which is that the act shall not be construed as permitting the consolidation of the Atchison, Topeka & Santa Fe road, or any connection thereof, with the Southern Pacific Railroad and its connections.

In the Senate on the 11th:

The bill granting right of way through the Indian Territory to the St. Louis & San Francisco Railroad came up as unfinished business. Mr. Hawley denounced it, in the amended form in which it came from the Railroad Committee, as an attempt to violate the treaty rights of the Indians. Upon the pretext of ratifying an act of the Choctow Council, he held, the bill proposed to seize their lands without providing any system for adjusting the rate of compensation. He could conceive of emergencies in which the United States would have a right, in the proper legal sense of that term, to pass legislation in contravention of a treaty, but duty required it to exhaust all other remedies before going to that extremity.

Mr. Jonas, of Louisiana, said that the Choctaws had declared in favor of the proposed road by electing public officers friendly to the grant. The rights of the Chickasaws were not affected, as the road would not reach their lands. He referred to the total lack of information on the Indian question which seemed to be characteristic of the people of the East. Not a single acre had ever been taken from an Indian in Kansas without his consent, nor without ample compensation to him. He ridiculed the sentimentalism which daily propagated the falsehood that the government was unfaithful to its treaty obligations with the Indians, and attributed the diversity of sentiment on the Indian question to a misunderstanding of actual facts.

After further discussion in which Mr. Plumb gave notice of several amendments and Mr. Maxey favored early action the bill went over without action.

In the House on the 12th:

Mr. Hoblitzell, of Maryland, reported from the Committee on Railways and Canals a bill authorizing the Secretary of War to lay out and construct a canal through the the states of Maryland and Delaware, to connect by the most practicable and convenient route the waters of Chesapeake and Delaware bays, as a means of military and naval defense and for commercial purposes. The bill provides that the canal shall not be less than 100 ft. wide at the bottom, 26 ft. below mean low water, and 178 ft. wide at low water level, with locks 60 ft. by 600 ft. in the chambers, and sufficient to allow the passage of vessels drawing 22½ to 23 ft. of water. The bill provides for suitable surveys for condemnation of lands, obtaining right of way, etc. It empowers the Secretary of War to establish regulations concerning the use and navigation of the canal, and appropriates $1,000,000 to carry into effect the provisions of the act.

Reorganization of the Master Car-Builders' Association.

The following circular has been issued by the Committee appointed at the last annual convention of the Master Car-Builders' Association to report on the proposed reorganization of that Association:

To Railroad Presidents, Managers and Superintendents:

At the last annual convention of the Master Car-Builders' Association an amendment to its constitution was proposed, which, if adopted, would result in some important changes in the organization of that body. A committee was then appointed and instructed to present the proposed amendment to the consideration of the managers of railroads, and, if possible, get their opinions concerning the advisability of the measure. It is with this object in view that this circular has been prepared.

To give a clear idea of what is proposed it may be said that at present the Association is a voluntary organization of the master car-builders of this country and Canada, and, as an Association, it receives no support whatever from the railroad companies, which are the owners of the property which is intrusted to the care of the master car-builders, and the improvement of which is the chief subject of consideration and discussion at their meetings. Neither are the railroad companies directly represented in the Association, excepting by such exertions in behalf of their employers as their master car builders may choose to make, if they are members. But even if they are, their influence and their votes are not, at present, in any way proportioned to the interests of the companies they should represent. The master car-builder of a small road, owning a few hundred cars, may now influence and control the action of the Association as much as the car-builder of a line owning many thousands. It was therefore thought by some that if the Association was so organized that each railroad company could be represented by a vote in its deliberations proportionate to its interests, or, in other words, to the number of cars it owns, and if the work which the Association has done and should do was adequately explained and understood by the chief executive officers of the railroads of the country, that they would be inclined to co-operate with the Association and assist it in its work. An amendment to the constitution was therefore introduced at the last annual convention, the purpose of which is to create a new class of members, to be called "Representative Members," with the status and privileges indicated above, and described in the following sections, which embody the amendments proposed:

PROPOSED AMENDMENTS TO THE CONSTITUTION OF THE MASTER CAR BUILDERS' ASSOCIATION.

ARTICLE III.

"SEC. 1. There shall be three classes of members, Active, Representative and Associate members.

"SEC. 2. Any person holding the position of Superintendent of the Car Department, Master Car-Builder, or Foreman of a Railroad Car Shop, or one representative from each Car Manufacturing Company, may become an active member by signing the constitution, or authorizing the President or Secretary to sign for him, and paying his dues for one year.

"SEC. 3. Any person having a practical knowledge of car construction may become a Representative Member by receiving a *written* appointment from the President, General Manager or General Superintendent of any railroad company, to represent its interests in the Association. Such members shall have all the privileges of active members, and in addition thereto, on all measures pertaining to the adoption of standards for car construction, or the expenditure of money, they shall have one more vote for each thousand cars the company which they represent owns. [No railroad company shall have more than one representative member.]* In the enumeration of four, six or twelve-wheeled cars, four axles to count as one car. The dues of representative members shall be in proportion to the whole number of votes they are entitled to cast. Their membership shall cease if their appointment is revoked by any officer authorized to make it, or when such a member leaves the employ of the company by which he was appointed."

After a good deal of discussion this measure was referred to a committee of five members, whose names are appended to this circular, to report on it at the next annual meeting, to be held in June next.

In order to give to those to whom this circular is addressed an understanding of the purposes of the Car-Builders' Association, and the work which it has done, and may do, it can be said that it has now been in existence for fifteen years. Its objects, as stated in its constitution, are "to enable the members to exchange information regarding the best mode of constructing railway cars; also for the discussion of all matters pertaining to car-building and repairing." As stated before, it is simply a voluntary organization of the master car-builders of the country, who meet together to discuss and, if possible, to agree about certain things relating to their occupation, in which agreement is desirable. It has no other authority than that of *recommending* certain measures, and no change in this respect is contemplated. Any company represented in its deliberations may exercise whatever influence it can in shaping such recommendations, but if the latter do not commend themselves to the officers of any company, there would be no obligation to adopt or follow them.

As an illustration of the action of the Association, it may be said that some years ago there was no common standard for the form and sizes of screw-threads used in cars, and consequently, that the screws of bolts and nuts, of the same nominal size, differed so much that the nuts made on one road would not fit the bolts made on another. For example, a Baltimore & Ohio ¾-in. nut would not fit a New York Central ¾-in. bolt. Much loss, delay and expense was, and still is, incurred from this cause. The Association therefore recommended the Sellers or Franklin Institute standard of screw-threads for general use in car construction. Since then, many roads have adopted this recommendation, but others, for reasons no doubt satisfactory to themselves, have not adopted it. As a result of the action of the Association, however, uniformity in screw-bolts is gradually being brought about, and it is now rare that railroad managers, when they once understand the subject, do not direct that the recommendation regarding the standard for screw-threads be adopted on their lines.

Great difficulty, too, was experienced in coupling cars from the variation in the height of the draw-bars. A resolution was therefore passed recommending the standard height from the top of the rails to centre of draw-bar at 2 ft. 9 in. This height is the one now generally adopted, excepting by the Pennsylvania Railroad and its connecting lines, on which the standard is 2 ft. 11 in.

The Association has also recommended standard forms and dimensions for car-axles, journal bearings, journal-boxes and pedestals, for the position of brake-wheels, the dimensions of draw-bars and other parts of cars.

Through the instrumentality of the Association a system of rules "governing the condition of and repairs to freight-cars for the interchange of traffic," has been framed, and is now conformed to by nearly all the principal roads in the country in the adjustment of the perplexing charges and accounts for repairs of cars. It may be mentioned here that many of the companies who are now governed by these rules have taken no part in framing them, and that in some cases it might have been to their interest if they had.

It is, of course, impossible for this Committee to anticipate all the work which the Car-Builders' Association may advantageously do in the future. It can be said, though, that if sufficient uniformity in the construction of cars could be brought about that it would result in the saving of hundreds of thousands of dollars annually to railroad companies. To show how great the diversity still is, the Committee requested several car-builders to give the number of different duplicate parts which they are now obliged to keep on hand at certain points for the repair of foreign cars. Mr. Adams, Master Car-Builder of the Boston & Albany Railroad at Boston, writes:

"We have about *forty* different kinds of brake-heads and shoes, *eleven* different journal-boxes, *thirty-seven* journal-bearings, *ten* cast-iron and *five* or *six* wrought-iron draw-bars, *eight* or *ten* different draw-bar side castings and a multitude of various other kinds of different parts of cars."

Mr. Packard, Master Car-Builder of the Baltimore & Ohio Railroad at Baltimore, says:

"The list I give you is from the patterns we use at this point and distribute to other points where interchanges of other cars are made. We also have to order a great many from different roads when we have not the patterns to make them from, which would increase this number very materially if we had the patterns for every one we use. I submit the following, viz.:

"55	different	kinds	of	journal-bearings.
25	"	"	"	boxes.
25	"	"	"	box covers.
20	"	"	"	brake-shoes.
22	"	"	"	heads.
12	"	"	"	hangers.
6	"	"	"	axles.
8	"	"	"	draw-bars.
10	"	"	"	follower-plates.
15	"	"	"	spring "
8	"	"	"	stop-castings.
10	"	"	"	side-bearings."

Mr. Verbryck, Master Car-Builder of the Chicago, Rock Island & Pacific Railway at Chicago, reports:

"We have *five* kinds of journal-boxes on our road, and I have patterns for *three* kinds of New York Central & Hudson River and the Master Car-Builders' standard. But in looking over my orders for the last year I find I have had to order *forty-six* different kinds of journal-boxes, besides the kinds I have cast for repairs of foreign cars broken on our line, and miscellaneous castings for *sixty* different kinds of cars, wrought-iron draw-bars for *forty-four* different kinds and *eight* or *nine* kinds of *cast-iron*. I have *fifty-four* different patterns of journal-bearings, and have had to buy *thirty-five* different kinds besides during the year. I cast *five* kinds of brake-heads and shoes and have bought *forty-three* different kinds more. Springs, side-bearings and follower-plates I cannot tell how many kinds I have used, but they are about as numerous as the different kinds of foreign cars that are run over our line."

The Master Car-Builder of the New York Central Railroad at Buffalo gives the following list of different kinds of parts which must be kept on hand at that point:

56	different	kinds	of	axles.
46	"	"	"	journal-bearings.
2	"	"	"	journal-box covers.
58	"	"	"	journal boxes.
24	"	"	"	draw-bar follower-plates.
22	"	"	"	brake-hangers.
23	"	"	"	draw-bars.
8	"	"	"	draw-bar stops.
27	"	"	"	brake-heads.
20	"	"	"	brake-shoes.
10	"	"	"	side-bearings.

At a recent meeting of car-builders Mr. W. W. Snow, who is engaged in the manufacture of brake-shoes, reported that he had 182 different patterns at his works which had been sent as samples to manufacture from, and that at the present time there are not less than 300 different kinds in use in the whole country.

The parts enumerated are only a few of those used in the repair of cars, and if they were all named it would increase the lists to enormous proportions. A similar condition of things to that indicated by the few reports given exists wherever any considerable number of cars are interchanged from one road to others.

Not only is an enormous expense thus incurred by keeping immense quantities of what may be called dead supplies on hand, but the cost of making repairs is very much greater than it would be if the cars were more uniform in construction, and what is worse, traffic is greatly delayed thereby.

If there was greater uniformity, the result would be that many parts of cars would become staple articles of merchandise. They could and would be manufactured in large quantities by those who could produce them at the lowest cost. In dull times manufacturing establishments could be employed in making such articles without orders, with the assurance that ultimately there would be a market for them. In this way the supply and prices would be equalized and the latter reduced, and the tendency would be to accumulate stocks of such articles adequate to meet the demand at any time. The general adoption of the Master Car Builders standard axle has, in fact, already been followed by such results, and axle manufacturers now do not hesitate to make large numbers of them without orders whereas they are not safe in making axles of special sizes, which are used only by one or very few companies. There is no reason why standard journal-bearings, journal-boxes, journal-box covers, pedestals, dust-guards, brake-shoes, brake-wheels, draw-bar, draw-springs, coupling-pins and links and, in fact, all the forgings and castings used about cars, should not become just as much staple articles as bar and angle iron, bolts, nuts, screws and rivets now are.

Not only does this diversity result in pecuniary loss to railroad companies, but there is good reason for believing that it adds to the danger of operating and of traveling on

* The words in brackets were proposed as an additional amendment, but no action was taken on them.

railroads. Many facts and illustrations could be given to prove this. Two only will be selected.

No evidence is needed to show to any railroad officer, no matter how much or how little knowledge of engineering he may have, that two car wheels on the same axle should be of the same diameter. It would, therefore, naturally be supposed that in the manufacture of wheels the greatest pains would be taken to make them of the same size. Instead of this being the case, a recent public discussion of car-builders and wheel-makers revealed the fact that in making the chill-molds, in which cast-iron wheels are cast, each manufacturer makes those intended for wheels of the same nominal size of any diameter his fancy happens to suggest, and it was shown that the molds used by different makers, for 33-in. wheels, varied as much as ⅜ in. in the diameter. It is, therefore, not surprising that a large proportion of car wheels are condemned on account of sharp flanges, or that derailments are frequent.

Considering the great danger which attends the coupling of cars, it would be expected that the attachments intended for the protection of the men, while engaged in such work, would be of the most effective kind. Instead of this being the case, cars are now made on two systems, quite inconsistent with each other, and which are a great source of danger when working together. On the Pennsylvania system of roads the freight cars are now made with two deadblocks on the ends, while on the New York Central, the New England and Chicago roads one only is used. These are often made of such proportions that in case a car with two blocks comes in contact with another with one, and the draw-gear breaks, the blocks interlock, and a man between the cars is quite certain to be crushed. The diversity in form, construction and location of brake-wheels, running-boards, steps, ladders and hand-holds is also a great source of danger to trainmen.

The most careful estimates show that from 1,200 to 1,500 railroad employés are killed in this country annually, and from 5,000 to 10 000 are more or less seriously injured. A very considerable proportion of this sacrifice of life and limb is preventible by improved and uniform methods of constructing cars.

It may be said though by railroad managers that while it is admitted that it is desirable to bring about uniformity of car construction, it is not plain that it can be accomplished by the Car Builders' Association. To this it may be replied that there is no other association now in existence, or likely to be formed, which is better suited than the Car-Builders' is to decide on these matters.

Of the ability and capacity of the Master Car-Builders generally for performing their duties the Committee will not speak, excepting to say that railroad companies themselves have selected those who occupy these positions, and it may be presumed that they have chosen competent men. It is, of course, true that the car and every other department of a railroad must be subordinated to the interests of the owners of the property, over which the chief executive officers preside; but under the control which the latter would exercise it would seem as though the person most competent to advise about the construction and repair of cars would be the one placed in charge of that work.

Nevertheless, while it is not proposed by the new amendment to the constitution to take away from any master car builder the right or privilege of being an "active" member of the Association, yet if any railroad company should wish to have its interests represented by some other person, *besides* its master car-builder, the proposed amendment gives the right to appoint any one "having a practical knowledge of car construction" as a "Representative Member." The purpose of the new measure, as stated before, is to give to railroad companies a representation proportionate to their interests, and the right to appoint a person who in their opinion is best suited for such service.

While the task of bringing about uniformity seems at present to be of more importance than improvement in the construction of cars, yet the promotion of the latter is as much or more the object of the Car-Builders' Association as the former. There can be no doubt that the intercourse of those in charge of the car departments on different roads, which is brought about by their meetings once a year, has a very great influence in disseminating knowledge of inventions which are brought out, and, what is perhaps more important, of improvements which are made by simplifying details, adopting better methods of putting work together, and rendering cars more substantial and more serviceable. The advantage, too, is not only that these meetings introduce new ideas into the minds of those who attend them, but the latter are apt to have wrong notions removed or corrected, as there is no process by which an error can be so quickly demolished as by the discussion of it.

The cost of carrying on the Car-Builders' Association, considering the enormous value of the property over which it exercises more or less influence, appears absurdly small, as the total expenses have been considerably less than $500 per year. That its usefulness could be increased if it had more money there can be no doubt, but the amount which could be *advantageously* expended is so small as not to weigh at all in considering the benefits which would result if the Association is well organized and conducted.

As stated in the beginning of this circular, the Committee have been instructed to get the opinions of the chief executive and other officers of railroads concerning the proposed plan of reorganization of the Association. As the matter will come up for consideration and final action at the next annual convention, to be held in June, the Committee solicit from you a brief letter saying whether you approve of the measure or not, and whether, if it is carried out, without any objectionable conditions, your company would probably appoint a representative to the Association, with any other comments you may be inclined to add. Such a letter will have its due influence in procuring either the adoption or the rejection of the proposed amendment to the constitution. The Committee hope that you will favor them with an early reply, which should be addressed to M. N. Forney, No. 73 Broadway, New York.

LEANDER GAREY,
W. T. HILDRUP,
M. P. FORD,
C. A. SMITH,
M. N. FORNEY,
} *Committee.*

New York Central Standard 34-ft. Box-Cars.

The double-page engraving and end views which we give this week represent the present standard 34-ft. box cars adopted for the New York Central and the other Vanderbilt roads, including the Lake Shore, Michigan Southern, the Michigan Central and the Canada Southern. The following are the specifications to which these cars are built:

SPECIFICATIONS.

CAPACITY OF CAR, 40,000 LBS.

General Dimensions.

Length of car outside of sills, 34 ft.
Width of car outside of sills, 8 ft. 6 in.

Height of car from bottom of sill to top of plate, 7 ft. 8 in.

Door opening, 5 ft.

Timber for Body of Car.

(Finished Sizes.)

2 Georgia pine sills, 4¼ × 8 in., 33 ft. 5 in. long.
4 Georgia pine intermediate floor-timbers, 2⅝ × 8 in., 33 ft. 5 in. long.
2 Georgia pine centre floor-timbers, 4¼ × 8 in., 33 ft. 5 in. long.
2 Georgia pine plates, 3 × 6 in., top beveled to angle of roof, 34 ft. 1¾ in. long.
2 white oak end-sills, each 5 × 9¾ in., 8 ft. 6 in. long.
2 white oak cross-frame tie-timbers, each 4 × 7⅛ in., 8 ft. 6 in. long.
4 Georgia pine double spring draw-bar timbers, each 5 × 6 in., 10 ft. 3¼ in. long.
2 Georgia pine centre double spring draw-bar timbers, each 4¼ × 5 in., 8 ft. 2 in. long.
2 white oak double spring draw-bar timbers, 6¼ × 8 in., 1 ft. 6 in. long.
2 white oak buffer-blocks, 5½ × 8½ in., 2 ft. 2 in. long.
2 white oak brake-hanger timbers, 4 × 8 in., 1 ft. 3⅝ in. long.
4 white oak corner-posts, 3¾ × 5½ in., 7 ft. 3 in. long.
4 white oak door-posts, 3⅝ × 4½ in., 7 ft. 3 in. long.
8 white oak intermediate-posts, 2 × 4 in., 6 ft. long.
12 white oak cripple studding, 2 × 3 in., 3 ft. 4 in. long.
6 white oak end-posts, 3 × 3 in., 6 ft. 2¼ in. long.
4 white oak end-braces, 3 × 3 in., 6 ft. 1½ in. long.
12 Georgia pine or oak side-braces, 2 × 6 in., 6 ft. 11 in. long.
2 Georgia pine or oak end-plates, 3 × 11⅓ in., 8 ft. 6 in. long.
9 oak or Georgia pine main-carlines, 1¾ × 8½ in., 8 ft. 3 in long.
38 oak or Georgia pine carlines, 1¾ × 2½ in., 4 ft. 4¾ in. long.
4 oak or Georgia pine carlines, 1⅝ × 3 in., 4 ft. 5 in. long.
6 Georgia pine purlines, 1½ × 2½ in., 34 ft. long.
2 Georgia pine purlines, 1½ × 3 in., 34 ft. long.
1 Georgia pine ridge-pole, 1⅝ × 5 in., 34 ft. long.
6 white ash or Georgia pine door-frame stiles, 1¾ × 5 in., 6 ft. 1½ in. long.
2 Georgia pine top-rails, ⅞ × 7 in., 5 ft. 3 in. long.
2 Georgia pine middle-rails, ⅞ × 7 in., 5 ft. long.
2 Georgia pine bottom-rails, ⅞ × 7 in., 5 ft. 3 in. long.
4 white pine door-braces, ⅞ × 4 in.
2 white oak door-stops, 2 × 1⅝ in., 6 ft. 6 in. long.
Georgia pine fascia-boards, 1½ × 5 in.
Georgia pine flooring, 1⅝ in. thick, not over 6 in. wide, planed, tongued and grooved ⅞ in. from face; tongue ⅜ × ⅜, edge rounded.
White pine siding, ⅞ in. thick, not over 3 in. wide, planed, tongued and grooved, with ¼-in. bead on edge.
White pine inside lining, ⅞ in. thick, planed, tongued and grooved.
Beveled strips on floor, below lining, 1⅜ × 1⅜ in.
White oak capping over inside lining, 2¼ × 3 in.
White pine roofing over iron roof, ⅞ in. thick, planed, tongued and grooved, not over 6 in. wide, free from sap, shakes, black or loose knots, or any other injurious defects.

Timber for Trucks.

(Finished Sizes.)

2 white oak bolsters, 8 × 12, 5 ft. 9 in. long.
2 white oak spring-planks, 2½ × 11¾ in., 5 ft. 9 in. long.
2 white oak brake-beams, 4 × 6 in., 5 ft. 9 in. long.

Framing.—Side-sills, centre floor and intermediate-timbers framed to end-sill by double tenons, as follows: commencing at top, 1½-in. shoulder, 1½-in. tenons, 2-in. space, and 1½-in. tenons, and 1½-in. shoulder; end-sill fastened to side-sill at each corner by one ¾-in. joint-bolt, 12 in. long; end-sill fastened to centre floor-timbers by 2¾-in. joint-bolts, 12 in. long. End-sills, centre floor and intermediate-timbers placed as shown in drawing.

Centre of bolster, 4 ft. 10 in from outside of end-sill. The distance from outside of end-sill to centre of cross-frame tie-timbers, 12 ft 9 in. The centre and intermediate floor-timbers to be gained out ½ in. to receive cross-frame tie-timbers. Ends of cross-frame tie-timbers sized off ½ in. to receive side-sills, and fastened to side sills and centre floor-timbers with one ⅝-in. bolt in each timber, and to intermediate-timbers with one ½-in. bolt in each timber. Door-posts framed with lip, ⅞-in. thick, passing across sill and plate, 1-in. space and 1-in tenon, 1½-in. long; corner-posts, at bottom, framed with lip, 1⅝ in. on one edge and 3 in. on other; top framed with ⅞-in. lip and 1-in. tenon, same as door-posts. Intermediate posts framed for cast-iron pockets, as shown in drawing.

Side and end-braces to be furnished with cast-iron shoe or pocket, which allows end of braces to be cut square, as shown in drawing.

Body-Bolsters.—Bolsters to be made of wrought iron, top iron 8 × ½ in., bottom iron 8 × ⅝ in, welded at the ends, and formed as shown in drawing; bolsters locked into sill and floor-timbers, ½ in. fastened to sill with two ⅝-in. bolts in each end; centre-timbers fastened to bolster with two ¾-in. bolts in each timber through centre-timbers, draw-timbers and centre-plate, as shown in drawing; two pieces of ¾-in. gas-pipe, 5 in. long, through draw-bar timbers to receive bolts through centre floor-timbers, transoms and centre-plate, each intermediate-timber fastened to bolster with two ½-in. bolts, as shown in drawing.

Draw-Bars.—D. Hoit's double spring draw-bar and buffer, as shown in drawing.

Buffer-Blocks.—Buffer-blocks held in position by two pieces of 3 × ⅜-in. wrought iron, formed as shown in drawing, mortised into end-sill 2 in. deep, 5 in. from bottom, other end passing out under buffer-blocks 4 in. and fastened to buffer-blocks and end-sill as shown in drawing; buffer-block is also fastened to above irons by two ⅝-in. bolts passing through buffer-block and irons vertically; each buffer-block is supplied with two cast-iron heads or washers, 1½ in. thick, 5⅜ in. diameter, recessed in face to receive head of bolt that passes through buffer-block, angle-iron and end sill, as shown in drawing.

Buffer and Connections.—The buffer to be made of wrought iron, 28 in. long over all; the shank to be 5 in. wide and 6 in. deep, to be formed according to drawing, and held in position at end of car by draw-bar stirrups of 8 × ⅝-in. iron, and plate of 8 × ¼-in. iron over top, and fastened to end of car with four ¾ in. bolts—two passing through end-sill and two through buffer-block, with large washers under bolt-heads, to be furnished with crucible cast steel, coiled draw and buffer-springs, 6 in. diameter and 6¾ in. long, with capacity of not less than 18,000 lbs. each, to be manufactured by the French Spiral Spring Company; the draw-bar rods to be made of 1¾-in. round iron, with 4½-in. of each end upset, leaving the size 2 in. round for nut; the nut on end of rod in draw-bar to be fitted with ⅝-in. split key through nut and rod; the rod at opposite end to be fitted with ¾-in. split key, to prevent nut from working off.

Bar to be 12 ft. 8⅝ in. between nuts; the cross-frame tie-timbers to be fastened together with two 1-in. round rods, 9 ft. 2 in. long, placed horizontally in line with centre of draw-rod, and as close to centre-timbers as possible. Centre of buffers, when car is light, must be 2 ft. 9 in. from top of rail.

Rods.—Each side of car to have four ¾-in. rods and two ⅝-in. rods passing through side-plate, head of brace and sill; lower end of rods at corners of car to be in the joint, between end and side-sill; rods furnished with wrought-iron washer at each end, 2½ in. wide, 3 in. long, ⅜ in. thick, with nut at lower end of rod. Two ¾-in. rods in each end of car, passing through end-plate and head of brace and end-sill; nuts with washers, 2½ in. square and ⅜ in. thick at each end; four ⅝-in. angle-rods on each side of car, furnished with wrought-iron washer at top, ¼ in. thick, 2 in. wide, formed as shown in drawing. Bottom of angle-rods furnished with cast-iron washer, 3¼ × 5½ in.; the heads of above rods to be formed to suit angle of rods; all washers for rods on plate to be let in flush with top. Each end of car to have two ½-in. tie-rods, one across top of car, through side-plate and corner irons and let into end-plate, the other through corner-post directly over top of capping, and each corner of car to have one ½-inch tie rod through corner-post and side-brace. Each side of roof to have four ½-in. tie-rods through plate and purlines, as shown in drawing.

Truss-Rods.—Each car to have two truss-rods of 1⅛-in. round iron, with ends upset to 1¼ in. round to receive nuts. The bearings of rods to be of cast iron, position of bearings and formation of rods as shown in drawing.

Floor.—Floor to be nailed with twenty-penny nails, two in each floor-timber, in all pieces over 4 in. wide, and to be put down crossway of the car, and all pieces to be of full length from outside to outside of sills.

Threshold.—The threshold in doorway to be of cast iron, ½ in. thick, 3⅝ in. wide, well fitted to door-posts and fastened to floor with screws.

Sheathing.—Outside sheathing to be put on vertically, and to be nailed with seven-penny clinch-nails, four nails in each piece at sill, two in centre, and three in plate.

Lining.—Inside lining to be put on horizontally, and nailed with seven-penny clinch-nails, two nails in each piece at each post, and a space of 2 in. to be left between floor and lower edge of lining (a beveled strip to be fastened on top of floor and against inside of siding), to be not less than 3 ft. 2 in. high from floor to top of capping, capping to be well fitted to posts and braces, and fastened with 2½ × 16 screws.

Doors, Hangers and Fastenings.—Size of door, 6 ft. 1⅛ in. long, 5 ft. 3 in. wide, 1⅞ in. thick. The stiles to be halved at top and bottom, and gained in centre 2¼ in. to receive the rails, the corner of stiles to be rabbeted out ¾ in. to receive siding for outside of door; the middle stiles to be halved at top and bottom, gained in centre to receive rails, and rabbeted out on both corners to receive siding, the doors to be braced from centre of middle rail to top corners, all to be fastened together with 1¼ × 16 screws; doors to have a cap, ⅞ in. thick on edge, ½ in. thick on other, 2¼ in. wide, to shed water from top of door. Doors to be supported at top on bar of wrought iron, 2 × ⅝ in., set upon edge and blocked out with castings for that purpose, and fastened with ½-in. countersunk-head bolt; through plate: door-hangers to be a double roller hanger s rollers to be of cast iron, not less than 3 in. diameter; hanger to be of malleable iron, as shown in drawing, and fastened to top of door with four ⅜-in. bolts; a bar of wrought iron, 1 × ⅜ in., to be placed across bottom of door and let in flush with outside face and fastened with screws; four cast-iron hooks to be bolted on sill of car, to hook over bottom edge of door, to prevent it from swinging out from side of car. The back edge of door to be provided with wrought-iron wedge or key to fit casting, to keep door up to door-post and prevent sparks from entering the car, key to be fastened to car with short piece of chain; door stop fastened to door-post with four ⅜-in. bolts; a plate of No. 12 iron, 6 in. wide, 6 ft. 4 in. long, to be fastened to side of car with screws at back edge of doors; when closed, one edge of iron to be flush with door opening to prevent blocking the doors; the top of door and hangers to be protected by covering made of No. 22 galvanized steel, formed with a ½-in. half-round iron in lower edge, and fastened according to drawing. Door fastening to be of the "New York Central standard pattern."

Grain Doors.—[Blank for specification.]

Roof.—Roofing to be the "Winslow patent galvanized iron roof," to be put on in a thorough and substantial manner, according to drawing; all purlines and ridge-poles to run full length of car without splicing; roof-boards to be fastened to purlines and ridge-pole with three 2¼-in. No. 9 bar bed-wire nails in each board at all intersections of purlines and ridge-poles, the central part, or running board of roof, to project at each end of car 7 in., the projection to be made of oak, 1¼ in. thick, supported with brackets made of wrought-iron, ⅝ in. thick, and 1½ in. wide, as shown in drawing.

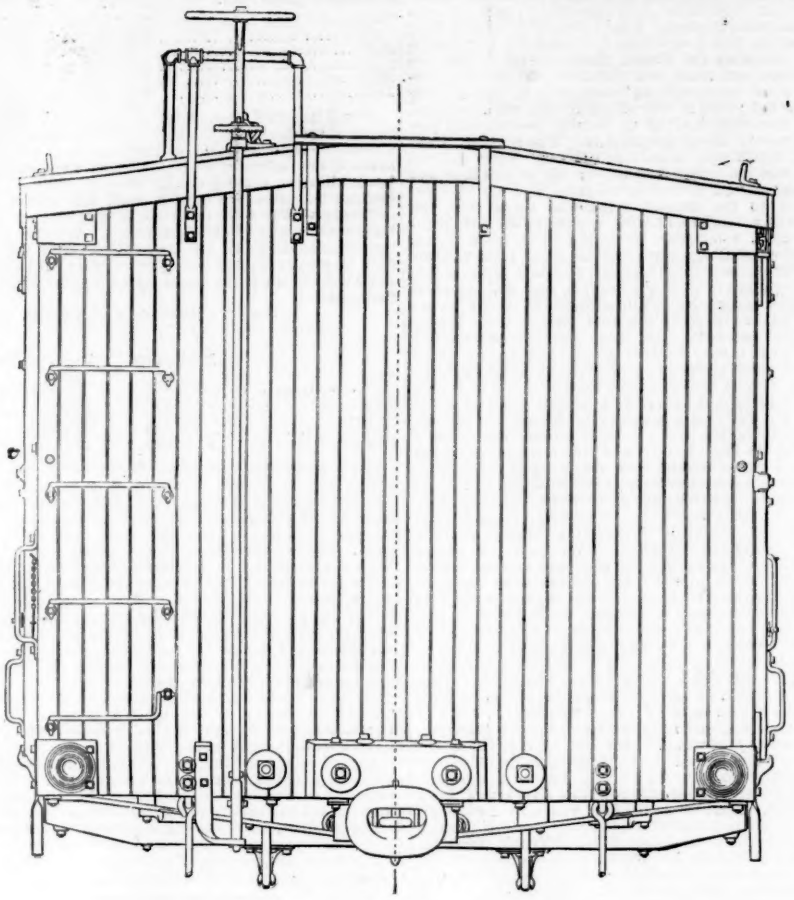
Brakes.—Brake standard to be made of 1¼-in. round wrought iron, with an enlargement at lower end, 8 in. long by 1½ in. diameter, forming drum for chain to wind upon, is to pass through an eye at top, and to rest and turn in a step at bottom, and to be furnished with a half circle bearing, just above the chain-drum, screwed into end-sill, forming a bearing for the standard. It is to be furnished with a ratchet-wheel well keyed on; wrought-iron pawl, with fixtures fastened to top of car; top of brake-shaft to be protected by a guard of ¾-in. gas-pipe or ⅞-in. round iron, formed as shown in drawing; distance from top of roof, in line with brake-shaft, to top of brake-wheel, 20½ in.

Brakes to be hung to body of car, as shown in drawing.

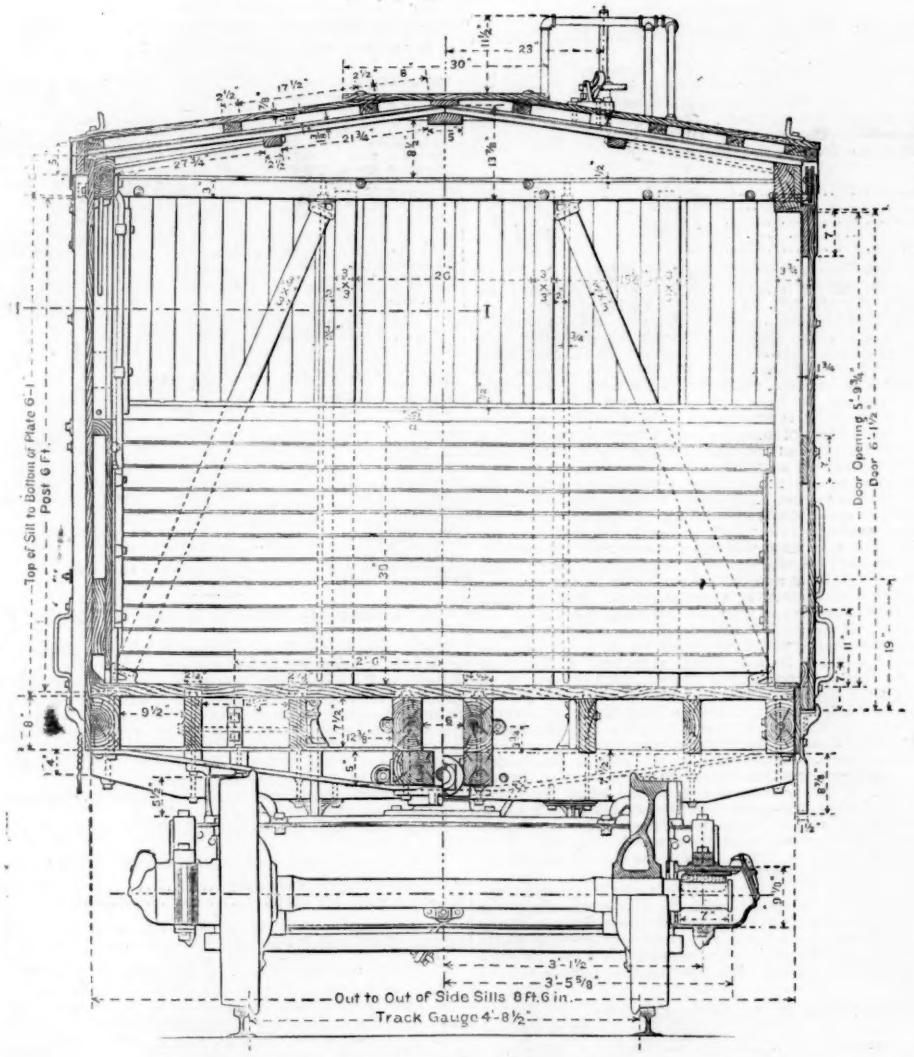
Step and Handle.—Each end of car is to be furnished with five wrought-iron steps, bolted to posts with 2½ × ½-in. coach-screws; also, with handles, same style, well fastened to roof; the bottom step to have an offset of 3 in. on inner end; end of car, at left hand of centre, to be supplied with a double handle, 36 in. long, as shown in drawing; the lower steps on side of car to be placed as shown in drawing; corners of car to be furnished with corner irons; the top irons to be 5 × ⅛-in. iron, 8½ in. long on each angle, fastened to car with four ½-in. bolts; also the rod passing across end of car; bottom bands to be 8 × ⅜-in. steel or flange iron, 9¼ in. long on each angle, a cup or pocket formed in one angle and fastened to car with four ½-in. bolts, as shown in drawing; corner of car, at steps, to be furnished with wrought-iron handles, 14½ in. from out to out of bend; distance from bottom of sill to centre of handle, 2 ft. 5½ in.

Centre-Pins.—Centre-pins to be made of 1¾ in. round wrought iron, 12 in. long under head, with good solid heads to rest in body centre-plate, as shown in drawing.

Trucks.—The trucks to be of the "New York Central standard pattern," and made of the best quality of wrought iron, the axles 5 ft. from centre to centre, upper, and inverted arch-bars 3 × 1-in. iron; the auxiliary arch-bar, 3 × ¾-in. iron; the pedestal tie-bar 3 × ½-in. iron; spring-hangers 3 × ¾-in. iron; transoms to be of Thielsen truck channel-bar, 10½ in. wide; the inverted arch-bars to be turned up at ends to fit the arch-bars; the iron forming the auxiliary arch-bars to be upset where angles or corners are formed, so that when iron is bent to form the angle it will be not less than 4 in. wide across the corners, and full thickness; all bolts through sides of trucks to be of ⅞-in. round wrought iron; each channel-bar fastened to auxiliary arch-bar by two ¾-in. bolts, and three ⅝-in. bolts; channel-bars fitted at each end with a casting, and riveted to receive bolts through arch-bars and channel-bars, as shown in



End View.



Transverse Section.

STANDARD BOX CAR

For New York Central & Hudson River Railroad and its Connecting Lines.

drawing; all bolts through arch-bars, channel-bars and pedestal tie-bars, to be furnished with Atwood patent nuts or an equivalent; all holes through channel-bars and castings, arch-bars and pedestal tie-bars to be drilled; journal-bearings to be Hopkins' patent, lead-lined; journal-bearing key to be of malleable iron; journal-box cover to be the Hewitt patent. The journal-box will be the "Master Car Builders' standard," except the front, which is to be altered to suit the Hewitt cover.

Axles.—Axles to be best hammered iron, "Master Car-Builders' standard pattern."

Wheels.—Wheels to weigh 525 lbs. each, to be guaranteed for three years, and all failing within that time from any cause inherent in the wheel to be replaced to this company free of charge. To be pressed upon axles at a pressure not less than 60,000 lbs. Wheel gauge will be furnished.

Springs.—Springs to be N. & A. Middleton's twenty-ton steel springs.

Card-Cases.—Each car to be furnished with two metal card-cases, secured to siding near car-door, made after the standard, 12×9½ in. inside, with wire rack and strip of rubber over top to keep off the rain, and blocked out on washers ¼ in. for circulation of air.

Bolts and Nuts.—All bolt-heads and nuts on inside of car must be let in flush, and all sharp corners removed, in order that they may not cut into or otherwise injure the merchandise.

Painting.—All of the wood-work usually painted must be covered with three coats of best quality mineral paint, or of such other paint or color as may be required.

In mixing said paint, no thinner than other pure linseed oil, turpentine or turpentine Japan, shall be used. All of the iron-work in body of car exposed to view must be well covered with one coat of gloss black. The trucks must be painted with two coats of mineral paint. The roof, top of floor timbers, outside and top of sills, and all mortices and tenons, are to be painted with mineral paint.

Patent Rights.—The builder in all cases to protect this company from all patent-right claims, except for such patents as especially directed by the company.

Samples.—A sample truck, or any or all castings or forgings used on a car, will be furnished if necessary, at cost.

Conditions of Contract.—All materials, forgings and castings, must be of the very best quality, and all work must be done in a substantial and workmanlike manner, and to the satisfaction of an authorized agent of the New York Central & Hudson River Railroad Company.

All timber, lumber and iron used, shall be of the best quality, and subject to such inspection and tests as the railroad company may desire to make.

Weights.—Each car is to be weighed, and weight marked thereon, on the right hand lower corner of both sides of car, and over the weight the words and figures, "capacity 40,000 lbs.;" for example:

Capacity	40,000 lbs.
Weight	—— lbs

Screw-Threads.—Standard for screw-threads, bolt-heads and nuts, as adopted by Master Car Builders' Association in convention at Richmond, Va., June 15, 1871.

Drawings.—Said car shall be constructed and finished according to these specifications and the accompanying drawings, together with such working and detail drawings, templets and patterns, as may be provided for in these specifications.

These drawings, together with such detail drawings as it may be necessary to provide to illustrate such parts of the work as are not set forth in the drawings, and such writings, figures and details, as may be upon them, are to be considered part of and as illustrating these specifications.

WEIGHT OF THE DIFFERENT MATERIALS FOR ONE CAR.

Wrought iron in car body	2,552	lbs.
Cast " "	797	"
Steel " "	104	"
Malleable iron "	134	"
Wrought iron in trucks, including axles	3,144	"
Cast " " " wheels	5,366	"
Malleable " "	48	"
Journal-bearings	80	"

We will give engravings of the trucks and other details next week.

Sir Henry Tyler on the Railroad War.

The following are extracts from the speech of Sir Henry Tyler, President of the Grand Trunk Railway of Canada, at the half-yearly meeting of that company in London March 30 last:

The report for the half-year is as satisfactory as we could expect, considering the circumstances of the half-year we have to review. We have been passing through a war of rates more intense and continuous than ever previously happened in America. Our gross receipts were £1,121,232, as against £1,158,407 for the December half-year of 1880, or a decrease of £37,174. But that decrease was not equally distributed through the receipts of the company, for we have shown a very large increase in passenger receipts, no less than £46,632. That occurred in consequence of the war of rates, because when we found how greatly we were injured by the adoption of low freight rates by all the other companies, and that the passenger rates were also being materially reduced, we took the initiative and started a further reduction of passenger rates; and I believe that measure had more effect in bringing about the peace which I hope has now been arranged than any other circumstance (Hear, hear). It also did no harm to us. It enabled us to advertise the Chicago & Grand Trunk, besides giving us this increase of £46,600 in the passenger receipts. On the other hand, we lost £90,415 in our goods receipts, not in consequence of a smaller quantity carried, because we carried 553 million tons one mile, as against 527 million tons in 1880, an increase of twenty-six millions. But it was carried at such miserably low rates—some of it, I am afraid, below the cost of the conveyance—as compared with the corresponding half-year, that we lost the sum I have named. All predictions which were made as to the absence of work to be performed in consequence of a defective harvest have been falsified by the increase in our atual traffic—(Hear, hear). Our gross receipts were made up of £419,000 from passengers, £691,000 from goods and £11,000 from rents and tolls. On the other hand, our working expenses increased by £40,000 and were £824,000, against £784,000 for the half year in 1880. This increase was partly in consequence of the additional amount of work which we had to do, and partly in consequence of higher rates of wages and prices of materials. The increase in our working expenses was thus from 67.67 per cent. to 73.52 per cent. Shareholders do not like any more than directors to see this increase, but its proper relation is not to what we spend only, but also to what we receive. If we get low rates for what we do, we cannot avoid having percentage of proportionately high working expenses. But let us look at how the working expenses of the other lines have increased. Nobody could so easily have put an end to the war of rates as Mr. Vanderbilt; but what have his lines done? The expenses of the New York Central have increased from 54 to 60 per cent. for the half-year; those of Lake Shore & Michigan Southern from 55 to 63; still more remarkable, those of the Michigan Central, which he bought in order to secure so far a monopoly of the trade of Chicago, have increased from 63 to 75 per cent.; and those of the Canada Southern, which he also patronizes, have increased from 66 to 79 per cent., which is far worse than ours. If we had only received the freight rates of 1880 for what we carried, our freight receipts would have been £129,000 more than they were. That would have been all net profit, and, added to the £297,000 which we did receive, would have made £426,000; and that would have been earned at a cost by way of working expenses of not more than 66 per cent. Further than that, Mr. Hickson in writing to us (and he is not over sanguine) says if it had not been for the war of rates we should have made much more than the £129,000; for he asserts that during the half-year we have lost, directly or indirectly, by the war of rates £350,000, and that would have

made the proportion of the working expenses only 60 per cent.

The local business very considerably increased during the half-year, and that is always a source of great satisfaction to us—(Hear, hear). As regards the freight traffic, the quantity carried one mile was 26 million tons in excess; on the other hand, the number of cars running one mile was one million less. That may seem an anomally, but it is partly because they have got into the way of loading the cars more heavily, and partly because there has been far more west-bound traffic than heretofore. Thus, the average number of tons carried in each car has been 7.19, as against 7.12. Considering the difference between our west-bound and our east-bound traffic, 7¼ tons, as the average load of every car running in either direction, is a very handsome amount. The west-bound traffic increased 33 per cent. over the corresponding half-year. In 1878 the west-bound traffic was 80 millions of tons carried one mile; in 1879, 125 millions; in 1880, 172 millions; and last year, 173,600,000; so that in the four years it has absolutely doubled in amount—(Hear, hear). The proportions for the present half-year are as 69 east-bound to 31 west bound, whereas, in 1880, it was 75 to 25. The average receipts per ton per mile were the very lowest we have ever come down to—.63 of a cent, as against .75 of a cent for the corresponding half-year. It is a miserable rate, and that entailed, as compared with the same half-year of 1880, the loss of £129,000 on the freight traffic alone, which I have already mentioned The average receipts per car per mile were 4 82, as against 5.34. Our engines are able to haul 35 cars in a train over parts of our line, where previously they took only 22 or 25 cars. As regards local and through traffic, the local traffic in 1880 was 227,000,000 tons, and through traffic 300,000,000, as against 241,000,000 and 312,000,000 last half-year. Since 1875 the proportion of east-bound and west-bound traffic has altered from 83 east-bound and 17 west-bound, to 69 east-bound and 31 west-bound. It is a matter of great interest to us, as we go on developing our traffic over the Chicago & Grand Trunk, to see what we are doing at the same time with the Michigan Central. That is now in the hands of Mr. Vanderbilt, who, though a very wealthy man, is not always the best railway manager in the world. He did all he could; first, by controlling the Michigan Central, and then by controlling our Chicago & Grand Trunk, by taking a piece of the middle of it, and to prevent our obtaining independent connection with Chicago. But we beat him on every point. His last move was to cut us off from through-booking of passengers with the Michigan Central. In doing so he has again played into our hands, for he has forced us to do what has proved really best for us When we were prevented from through-booking on the Michigan Central we had to through-book over the Chicago & Grand Trunk, and the result has been a large loss to them and a large gain to us. And not only so, but we can give a good deal to the Michigan Central as well as take from them. In the half-year we have done more with the Michigan Central than we did in 1880. The figures of traffic to and from the Michigan Central and the Grand Trunk in 1880 were 188,000 tons; last half-year they reached 214,000 tons. The money receipts were less, as they decreased from $721.000 to $472,000, but only because the rates were so very low. It has been said by some of our Great Western friends that we are under a disadvantage; that because we have the Chicago & Grand Trunk we cannot work with the Michigan Central; but here is the fact, that while their President has been trying to cut us off in certain respects, our traffic with them goes on increasing. Material interests will always triumph over personal feelings in the long run, and some day I hope, as we shall always be prepared, to work cordially in accord with Mr. Vanderbilt, to the mutual benefit of our respective interests.

I come next to the question which interests us more than any other, and that is the war of rates. That has been a matter mainly between the four American lines which are our rivals for traffic between Chicago and the ports of the Atlantic. The loss to us has been considerable, altogether something like £250,000, and the loss to the other lines has been more than I dare compute; and it has been all so much money thrown into the sea. Nobody has got any advantage from it, and no company has obtained any advantage over any other company, for we have all carried about the same proportions of traffic as would have been carried if all had been getting reasonable rates. In January and February serious steps were taken to come to terms, and I have here an agreement which was put forward for the signature of the five lines—the New York Central & Hudson River, the Erie, the Pennsylvania, the Baltimore & Ohio, and the Grand Trunk. There have been negotiations going on ever since. Mr. Fink, the Commissioner appointed by the American lines, is a gentleman upon whom we can entirely depend. He is a perfectly honest and capable man, and is devoting his whole time to try to make peace between all these railway companies. He is a gentleman to whose arbitration we would submit at any moment. He has drawn up an agreement which consists of three or four points. First, it is a question of dividing the traffic at all the different points at which traffic is competed for. In the second place, it is a question of arbitrating as to the proportions of the different companies at those points. Then there is a question of money forfeiture. And another question which I have urged on him is that the companies shall pay up money beforehand, and for this reason, that if an amount of money is due from an American company it is very hard to get it. If they don't pay it before, and place it in his hands, there is little chance of getting any forfeiture. There are still large outstanding balances due to us under previous arrangements, which we have not yet been able to obtain. Mr. Fink was so anxious on the subject of completing a general arrangement that he wrote, not long ago, a letter to Mr. Seargeant and also to me. He was afraid lest, if he got the other four companies into line, we might not be disposed to sign the agreement. In order that you may see that I do not tell you one story, and Mr. Fink another, I will read the letter I wrote to him on the subject. The first paragraph refers to another matter, to our railways in this country, and our Parliamentary committees. Then I go on to say, "I had the pleasure of receiving your telegram to the effect that you had heard satisfactorily from Mr. Hickson before your letter and its enclosures arrived." That was a fact; I received this telegram: "Received satisfactory letter from Mr. Hickson; all right." That shows that our officers and ourselves are acting with one mind in the matter I go on: "You will readily understand how we in England as well as our executive officers in America, have almost reached the condition of despair as to the durability of any arrangement which it is possible to make under a voluntary system with a view to the prevention of ruinous competition between the various railway systems of the American continent. I am extremely glad to observe, from your letter to Mr Seargent, that the trunk lines are now thoroughly in earnest about coming together for the purpose of perfecting machinery for the division of traffic, and for deciding by arbitration on the proportions to be allotted to the different systems of railway. The experience hitherto has been that when arrangements of this nature have been agreed upon one or other of the rival parties has not allowed much time to elapse before commencing proceedings likely to lead to their abrogation; and then, when fresh meetings are called, it is found that contracts have been entered into at low rates for some forward periods which prevent the possibility of a proper settlement or of adhering to such a settlement for some time to come. I feel sincerely, what I have always expressed, that it would be far better for any trunk-line system, including the Grand Trunk, to take, in settlement, somewhat less than it is entitled to rather than engage in ruinous competitions constantly recurring for lengthened periods; and if only this principle were accepted and adopted we should all of us be able to earn and pay vastly more money to our proprietors. You will not, I am sure, find any difficulty with our officers. They and we have always been ready to act upon your advice and to accept your decision on all points in dispute, and to co-operate with you to the utmost whenever there was the slightest hope of a settlement with a view to the establishment of peaceful relations. You, of course, understand, however, that we shall not complete the steel rails on our Chicago line until some time this year, and that it has not as yet had a fair chance of showing what it can do. It must necessarily grow materially in importance for many years to come. What have been the real causes of the insane competition and absurdly low rates for so many months past appears to be a very difficult question to answer, and I should be very much obliged if you could throw any fresh light upon it. If you can carry out the system which you say has now been agreed upon, of a money forfeiture, to enforce upon the different companies the plan of division of traffic under arbitration, you will be able to do much; but I apprehend that the money to be forfeited must be provided beforehand and placed within your reach, as it would appear from past experience to be hopeless to obtain payments which you may declare to be due as between one company and another, or from a defaulting company, if such payments are to be voluntary after your verdict on the part of the defaulting company. We have, I assure you, no desire to remain outside of any agreements which you may be able wisely to make, but shall be most happy to be bound, and to adhere honorably to all engagements I to which we, with others, may subscribe. Knowing that you yourself, not long since, were led to despair of the situation, I am only too glad to find by your letter that you are now really hopeful of arriving ultimately at satisfactory results, and it will give me the greatest satisfaction to hear from you further, directly, as to how you are progressing with the object which you have, I know, so much at heart of promoting fair dealing and harmonious co-operation among the different railway systems." We got yesterday morning a telegram, which I hope conveys the news that a settlement has at length been made (cheers). It runs in these words: "The terms of an agreement between the five trunk lines have been settled. Agreement for five years, to divide all dead freight, except coal and oil, passing the western termini of said lines eastward; in the case of Grand Trunk, Toronto. Upwards of $500.000 is to be placed at the credit of the commissioner wherewith to adjust balances" (cheers). That is from Mr. Hickson, dated March 29. The deposit of the money with a commissioner is the most important point of all; because he will thereby be enabled to settle the balances and make the defaulting companies pay forfeit (hear, hear).

British and American Bessemer Steel Manufacture.

The statistics of the production of Bessemer steel in the United Kingdom have just come to hand, and furnish the means of a suggestive comparison between our own and English Bessemer steel-works. Since 1877, the production of Bessemer steel ingots in the United States and in Great Britain was as follows, in gross tons:

Year.	United States.	Great Britain.
1877	500,524	750,000
1878	653,773	807,527
1879	829,439	834,511
1880	1,074,261	1,044,382
1881	1 374,248	1,441,719

The output of ingots furnishes the best means for a direct comparison, because in England the whole of the make is not used, as in this country, for the manufacture of rails. From our table it will be seen that, until the year 1879, we had advanced at so rapid a rate that we caught up with the older trade in England. In that year, however, the English manufacture of Bessemer steel expanded suddenly, and has since kept pace with our own, and the race has been a very close one. It may not, perhaps, be a very comforting thought to American producers that a large share of this increase is due to the receipt of business which they were not in a position to fill. But as they are probably, or should be, content with the record of that period as exhibited in their annual balances, their main cause for uneasiness will be the prospect for the future. According to the official returns, fourteen new converters are building in England now, the estimated capacity of which is about 840,000 tons per annum. This new plant will not, however, add that enormous amount to the production of the country, as many of the English works are old and would probably succumb under competition with their more vigorous rivals. Still, so much plant is held in reserve, a constant menace to producers the world over. Experience in all countries has too often taught how long the weaker will struggle before they give up the fight, and it will not be surprising, therefore, if this year should see England's output run up to 1,700,000 tons. With Germany working hard for an export trade, and Russia, France and Austria rapidly approaching the point where they will fill all their own requirements, the English Bessemer works will exert an enormous pressure on all markets, including our own. Apparently, we are getting into much better shape to cover a demand which shows signs of shrinking heavily. When it is considered at the same time that the outlook for the maintenance of the present duty is by no means bright, it will be fully understood why capitalists should carefully consider what they are facing when they propose to put up new works. There are several schemes of this kind in contemplation.

Turning now to a question which has much agitated engineers on both sides of the Atlantic, the production of a given plant here and abroad, we have the English figures of the average product per annum per converter for the years 1879, 1880 and 1881, while the American data can be computed much farther back. We give the figures in the following table:

Annual Production per Converter.

Year.	England.	United States.
1879	12,641	41,472
1880	13,125	48,830
1881	17,582	56,500

It will be seen that, in both countries, a very steady increase has taken place. As computed, however, the figures for Great Britain are really too low, because many of the works have been running only part of the time, while in this country they were steadily employed. Taking 22 English converters, which, we suppose, represent modern works, they turned out in 1881 534,000 tons of ingots, or an average of 25,400 tons. Even with this showing, the fast driving of the American works, which our English friends affect to be suspicious of, has doubled the capacity.

During the years 1877 to 1881, both inclusive, the production of steel rails in England and the United States was as follows, in gross tons:

Year.	England.	United States
1877	508,400	385,865
1878	633,733	491,418
1879	519,718	604,082
1880	739,910	852,197
1881	1,023,740	1,218,865

It will be noted that, so far as steel rails are concerned, we took the lead in 1 79, and have maintained it since; but allowance must be made for the fact that, of the quantity given below, as many as 100,000 tons were rolled from imported blooms, coming chiefly from England. The most important feature of the British steel rail trade, in which it differs so widely from our own, is the fact that for years the bulk of the make has been exported. We give below figures bearing on this point; but may suggest that the absence of data on stocks carried from year to year probably makes the variations in the home consumption appear larger than they really are.

English Production and Exports.

Year.	Production. Tons.	Exports. Tons.	Left for home consumption. Tons.
1877	508,400	235,453	272,947
1878	633,733	251,491	382, 42
1879	519,718	328,425	191,293
1880	739,910	464,491	275,509
1881	1,023,740	594,419	429,321

There is one direction in which necessity has forced English Bessemer steel makers to seek a market much earlier than our own. Here comparatively little merchant steel is made by the Bessemer process; in England, on the contrary, attention has been given to this subject for some years. During 1881, the make of steel plates, chiefly for ship-building purposes, reached 21,989 tons, and angles and shapes for the same class of consumers absorbed about 15,000 tons of raw material besides. It is estimated that 50,000 tons of ingots were worked into tires, axles and general forgings, the latter probably including considerable cutlery and hardware; though the accusation that Bessemer steel is used for such purposes is stoutly denied, as consumers are, perhaps unjustly, prejudiced against it.

The latest phase in the English Bessemer trade is the successful introduction of the basic process at the works of Messrs. Bolckow, Vaughn & Co., at Eston, where according to the announcement made officially to the shareholders in an annual report for the year 1881, the commercial as well as the technical problems have been solved. The growing enterprise of English steel makers, and their many great advantages for the supply of raw materials and the distribution of product, make the rapid growth of that industry in the last few years a matter which our makers, particularly in Eastern states, cannot afford to regard with indifference. — *Engineering and Mining Journal, April 8.*

ANNUAL REPORTS.

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Columbus, Hocking Valley & Toledo.

This company works a line from Toledo, O., through Columbus to Athens, 200 miles; the Ohio River Division, from Logan to Pomeroy, 83 miles; the Straitsville Branch, from Logan to Straitsville, 13 miles; the Monday Creek Branch, from Nelsonville to Monday Creek Junction, 17 miles; the Snow Fork Branch, from Snow Fork Junction to Ortiston, 3 miles; a total of 316 miles, of which 310½ miles are owned, and the use of 5½ miles, from Toledo to Wellbridge, is leased from the Pennsylvania Company.

The following brief statements are all that have so far been published for the year 1881.

The capital stock is $10,317,200; the amount of bonded debt is not stated.

The income account for the year was as follows:

Gross earnings ($7.674 per mile)	$2,519,750
Expenses (52.7 per cent.)	1,329,168
Net earnings ($3,768 per mile)	$1,190,582
Interest charges ($1,971 per mile)	622,881
Surplus for the year	$567,701

This surplus was equivalent to 5½ per cent. on the stock.

In 1880 the road was under three separate organizations, the Columbus & Hocking Valley, the Columbus & Toledo and the Ohio & West Virginia, which were in 1881 consolidated into the present company. The Ohio & West Virginia was only partly completed in that year. These circumstances prevent comparisons of results.

Grand Trunk.

The company's latest report covers the half-year ending Dec. 31, 1881, comparisons being made with the corresponding half of 1880. The mileage at the close of the half-year was 1,471½ miles, an increase of 11 miles during the half-year by the extension of the Montreal & Champlain Junction Branch to St. Martin. The increase in mileage since Jan. 1, 1881, is 144½ miles.

The earnings, etc., for the half-year were as follows:

	1881.	1880.	Inc. or Dec.		P. c.
Earnings	£1,121,232	£1,158,407	D.	£37,175	3.2
Expenses	824,300	783,894	I.	40,412	5.2
Net earnings	£296,923	£374,513	D.	£77.587	20.7
Interest, Int. Bridge	14,407	13,032	I.	1,435	11.0
" Cal. & G. T.	10,144	10,121	I.	23	0.2
Interest, loans	18,145	10,056	I.	8,089	80.6
Total	£339,682	£407,722	D.	£68,040	16.7
Per cent. of exps	73.52	67.07	I.	5 85	....

The above sum of £18,145 received for interest on capital temporarily employed includes interest on debts owing to the company, and on temporary advances on account of subsidiary lines. In the corresponding half year a sum of £10,053 was received, and deducted from the charge for the interest on debenture stock, as it had principally arisen from the temporary use of the funds raised by an issue of that stock.

The passengers and freight carried were as follows:

	1881.	1880.	Inc. or Dec.		P. c.
Passengers carried	1,428,347	1,185,080	I.	243,558	20.6
Tons freight carried	1,849,809	1,629,035	I.	220,774	14.6
Av. receipt per passenger	6½d.	6¾d.	D.	4½d.	6.6
Av. receipt per ton	89½d.	115d.	D.	25½d.	22.0

Passenger train earnings increased £46 632, or 12.5 per cent., while freight earnings decreased £90,415, or 11.6 per cent.

The income account was as follows:

Net receipts as above		£339,682
Interest on perpetual debentures, etc	£99.3 2	
" " equipment bonds	25,001	
Rents	84,415	
		208,778
Surplus		£130,904
Balance, July 1		8,123
Total		£139,027
Dividends, 2½ per cent., on first and second preference stock, paid April 3		138,529
Balance, Jan. 1		£498

The net revenue charges, less interest on investments shown above, were £163,022, against £185,277, a decrease of £19,255.

The report says: "The decrease in the gross receipts has been caused by the continuance during the half year of serious competition among the trunk lines in the United States. The fares for through passengers were also very much reduced, though the greater number carried, namely, 243,558, increased the receipts from that traffic by £46,632. On the other hand, the merchandise traffic, with an increase of 220,774 tons, showed a decrease of £90,415. The working expenses were increased by—(1) the additional work performed in the carriage of a greater number of passengers and tons of freight; (2) the maintenance and working of 144¼ miles of additional railway in excess of the corresponding period of 1880; and (3) an increase in the price of commodities and the rate of wages. The proportion which the working expenses bear to the gross receipts has been increased principally by the great reduction in the half year in the rates obtained by way of remuneration for the work done; and it must be remembered that the revenue account includes the net amounts only received on account of the 144¼ miles of additional railway above referred to, after deducting from the gross receipts the amount required to meet the traffic agreements with those railways. The amount charged against capital account during the half year was £1,880,661. The principal item, £1,781,121, represents the discount and expenses on the issue of £2,407,867 of ordinary stock, at 26 per cent., less the premiums received on the sale of debenture stock during the half-year. There has been expended £39,652 on new rolling stock, and £61,500 on new works, including £35,000 on new sidings and double tracks."

Chicago, Burlington & Quincy.

At the close of the year 1881 this company worked a system of roads in Illinois, Iowa, Nebraska and Missouri, whose total mileage was as follows:

Miles owned and leased	2,827.038
Miles of road leased and worked jointly with other companies, and road for which a fixed yearly rental is paid	97.293
Total miles worked	2,924.331

Additions to road owned during the year were 133.400 miles to the Republican Valley line in Nebraska, and 17.557 miles on the branch from Bethany to Albany, Mo. To roads leased and worked jointly with others there was added a spur 1.401 miles long, from Canal street to the Union Depot in Chicago.

The equipment at the close of the year was as follows:

	Roads east of Mo. River.	Roads west of Mo. River.	Total.
Locomotives	413	71	484
Passenger cars	155	48	203
Palace and dining cars	6	....	6
Baggage, mail and express cars.	75	13	88
Box and stock cars	10,864	1,997	12,861
Platform and coal cars	2,971	1,071	4,042
Caboose and way cars	223	33	256
Officers' and pay cars	5	2	7
Wrecking and other service cars	15	5	20
Hand and push cars	993	374	1,367

Additions to equipment during the past year were 43 locomotives; 19 passenger, 1 state-room and 4 baggage cars; 1,404 box and stock, 768 platform and coal, and 33 way cars; 1 officers' car, 1 pay car, 1 wrecking and 7 boarding cars; 118 hand and push cars.

The general account, condensed, but showing all the essential points, is as follows:

Stock, C., B. & Q.		$55,263,700 00
Fractional stock scrip		90 00
Burlington & Mo. River stock not converted		73,655.51
Total stock		$55,337,446.51
Chic., B. & Q. bonds, various issues	$32,631,475	
Bur. & Mo. river bonds	4,435,050	
Bur. & Mo. River in Nebraska bonds	14,831,200	
Contingent funded liability for branches	7,195,000	
		59,122,725.00
Unclaimed dividends, accounts and balances, current accounts		4,136,602.25
Sinking funds		8,486.5 5.57
Profit and loss		4,091,365.67
Renewal fund		4 2 0,0 00.00
Income account		1,769,837 49
Local aid and voluntary contributions		1,244,311.81
Total		$138,739,054.30
Construction accounts	$84,816,184.18	
Cost of branch roads	34,710,8 9.58	
Investments in leased and controlled lines	10,581,938.13	
Materials on hand	1,235,186.63	
Sinking funds	4,912,3 2.51	
Current accounts and bills receivable	2,641,433.13	
Cash	1,781 127.18	
		138,739,054.30

[1] During the year $1,000,000 stock was sold and $1,491,000 issued in exchange for Burlington & Missouri River and Republican Valley stock; $198 000 Burlington & Missouri River stock was issued in exchange for convertible bonds, and $198,600 exchanged for Chicago, Burlington & Quincy stock.

There were issued during the year $5,000 7 per cent. bonds and $3,335,800 Burlington & Missouri River 6 per cent. bonds in exchange for branch bonds; there were sold $5,400,000 Iowa mortgage 4 per cent. bonds. There were $4,036,800 bonds bought for sinking funds or exchanged for other issues, making a net increase of $1,704,000 in the bonded debt.

Another statement of financial condition given in the report is as follows:

Stock	$55,337,446.51
Bonds	59,122,725.00
Total outstanding securities	$114,460.171.51
Cost of property, investments and materials	134 343, 65.57
Excess of property over securities	$19,882,894.06
Represented as follows:	
In various sinking funds	$8,186,505.57
In construction	3,373,45 .27
In materials on hand	1,295,189.63
In sundry investments	5,527, 80.42
In accounts considered good	1,500,08 .23
	19,882,894.06

The expenditures of the company for new construction and equipment, representing additions to property in excess of the ordinary and necessary renewals, may be stated as follows:

New construction in Illinois, second track, etc	$1,076 401.25
" " St. L., Rock Island & Chi. R. R.	71,498.96
" " in Iowa	830,455.17
" " branches in Iowa	593,026.26
" " in Nebraska	481,238.03
New lines and extensions in Nebraska	2,664,607.13
Premium and discount on bonds	490,878.70
New equipment	1,796,944.77
Total addition to property	$8,014,249.27

From the land grant in Nebraska the sales of the year 1881 have been 129,960 53 acres, for $648,942 20, and the lands reverted 33,4.2.74 acres, representing $208,085.91, leaving as the net results of the year's operations, sales of 96,477.79 acres, for $440.856.29. The cash receipts of the year were $1,201,585.13; expenses, $121,148.42; balance paid over to treasurer, $1,170.436 71. The principal of land contracts on hand was $4,948,787.43, and there are 524,795.66 acres unsold land.

From the land grant in Iowa the gross sales for the year 1881 have been 33,298 acres for $423,510.17, an average price of $12.77 per acre, and the lands reverted 10,213.83 acres representing $143,607.46. The net result is 23,084.17 acres, for $279,902.71, an average price of $12.12 per acre. The cash receipts were $495,554.23; expenses, $25,353.76; balance paid over to treasurer, $470,200.47. The principal of the land contracts on hand is $1,660,810.91; the lands unsold are 39,204.83 acres.

The only statement of traffic given in the report is as follows:

	1881.	1880.	Increase.	P. c.
Passengers carried	3,2 2,818	2 800,151	402,667	14.4
Tons freight carried	6,710,750	6,639,1 6	71,564	1.1

The number of passengers does not include those carried on mileage and season tickets. Tons of freight include freight carried over the road by the Illinois Central in its own cars, 357,650 tons in 1881 and 376,9 tons in 1880.

The earnings for the year were as follows:

	1881.	1880.	Inc or Dec.		P. c
Freight	$16,595.819	$16,054.197	I.	$541,622	3.4
Passengers	3.616.086	3,534,209	I.	81,877	2.3
Mail, express etc	954.550	866. 89	I.	93,461	11.3
Interest and exchange	147,695	37,552	I.	110,143	292.9
Total	$21,324 150	$20.402 047	I.	$832,103	4.1
Expenses	11,066.514	9,804.494	I.	1,262,020	12 9
Net earnings	$10,257,63 6	$10,687,55 1	D.	$429,917	4.0
Gross earn. per mile	7,446	7,724	D.	278	3.6
Net " "	3,635	4,028	D.	393	9.8
Per cent. of expenses	51.8	47.8	I.	4.0	....

The disposition of the net earnings for the year is stated as follows:

Net earnings, as above		$10,257,635.65
Interest on bonds	$3,430,454.45	
Rent of tracks and depots	310,607.56	
Sinking fund payments	687,24 .61	
		4,428.367.62
Surplus over fixed charges		$5,829,268.03
Dividends, 8 per cent	$4 349,286.54	
Carried to renewal fund	1,000.000.00	
		5,349,286.54
Surplus for the year		$479 981.49
Net receipts from land grant in Nebraska		1,170 436.71
Balance from 1880		119,419 29
Balance of income, Dec. 31, 1881		$1,769,837.49

The President's report gives the following general statements for the year:

CONDITION OF THE ROAD.

In Illinois and Iowa during the year, 75½ miles of single main track have been laid with steel rails in place of iron, and 19 miles of steel rails have been laid in new second track, and 25½ miles in new side tracks. The total number of miles of steel rails in all tracks, east of the Missouri River, on Dec. 31, 1881, was 1,160. This includes the whole main line in Illinois and Iowa.

During the year 1881, 14 miles of second track have been built in Illinois and 5 miles in Iowa. The number of miles of second track owned by the company on Dec. 31, 1881, was, in Illinois 131, in Iowa 22.

In Nebraska during the year, 44 miles of main line track have been laid with steel rails in place of iron, making the number of miles of steel rail, single track, in the road west of the Missouri River, on Dec. 31, 1881, 126, of which 98 miles is in the main line between Omaha and Plattsmouth and Kearney Junction, and 28 miles in the track of the Atchison & Nebraska Railroad. The latter was in the road Dec. 31, 1880, but was not reported.

The general condition of the entire road and equipment has been fully maintained during the year.

NEW BRANCHES.

During the year, branch roads have been built in Illinois, Iowa and Missouri, in whole or in part, as follows:

1. The Leon, Mt. Ayr & Southwestern Railroad was extended from Bethany to Albany, Missouri, 17½ miles, and opened for business Oct. 1, 1881.

2. The Clarinda, College Springs & Southwestern Railroad, from Clarinda to the Missouri state line, 16 miles. Grading partly done; will probably be completed May 1, 1882.

3. The Joliet, Rockford & Northern Railroad, from Sheridan to Paw Paw, Illinois, 24 miles. Grading partly done; will probably be completed July 1, 1882.

In Nebraska during the year, extensions of the Republican Valley Railroad have been built as follows:

1. From Hubbell east to Endicott, 28.6 miles. Completed and opened for business Feb. 7, 1881.

2. From Beatrice southwest to Wymore, 12.3 miles. Completed and opened for business Feb. 7, 1881.

3. From Wymore west to Endicott, 27.1 miles. Completed and opened for business July 25, 1881.

4. From Nemaha west to Calvert, 9.6 miles. Completed and opened for business Oct. 10, 1881.

5. From Indianola west to Culbertson, 22.6 miles. Completed and opened for business Oct. 10, 1881.

6. From Table Rock west to Wymore, 38 2 miles. Completed and opened for business Dec. 5, 1881.

7. There was under construction on Dec. 31, 1881, the Denver Extension, from Culbertson to Denver, 246 miles, of which 77 miles were completed on that date, but not opened for business. It is expected that the line will be open to Denver by Sept. 1, 1882.

8. There was under construction on Dec. 31, 1881, a part of the Eastern Division of the Republican Valley Railroad, from Tecumseh to Calvert, 22 miles.

GENERAL REMARKS.

The average length of road operated in 1880, was 2,673 miles; while in 1881, the average length was 2.822 miles.

It will be observed that, notwithstanding the increased mileage in 1881, the net earnings have decreased $429,-917.20. The gross earnings, however, show an increase of $832 103.76, and the increase of expenses has been $1,262,-020.96. Of this, about $400.0.0 may be said to be due to the increase of business, leaving about $850 000 of extraordinary increase in the cost of operation and maintenance for the year, or about $305 per mile of road operated. This is due to increased prices of labor and material, and also largely to the snow blockade of February and March, 1881, and to the extraordinary floods in the Mississippi and Missouri rivers, in both the spring and autumn. The spring flood in the Missouri River was the highest since railroads occupied that region. The new mileage added late in 1880 and during 1881, increasing so considerably the average number of miles operated during 1881, is mostly in new and unsettled regions, to and from which business is naturally light for the present.

The staple crops along our lines in Illinois, Iowa, Missouri and Nebraska, were seriously injured by extremes of wet and dry weather during the summer, the effect of which we shall feel, doubtless, in 1882.

The policy of improving and strengthening the property has been continued, as shown by the account of expenditure for construction and equipment.

Land sales have not been so large as in previous years, partly owing to the diminishing quantity of land which we have had to offer. Payments on account of land sold have been as large as we had reason to expect.

It became apparent, in the latter part of the summer, that the interests of the company would be promoted by an extension of its line to the base of the Rocky Mountains, at Denver, and an addition to the Republican Valley system, in the eastern part of the state of Nebraska. A plan for carrying these objects into execution was approved by the stockholders at a special meeting, held on Sept. 28. Little or no benefit has been derived in the earnings from these extensions, work upon which was begun so late in the year.

Following our general policy, with regard to territory contiguous to our main line, your directors have for some years had in contemplation the construction of a railroad through the southern tier of Iowa counties, from a point on the Chariton Branch to the Missouri River. In the summer of 1880, the Wabash Railway Company acquired control of the Missouri, Iowa & Nebraska Railroad, running west from Keokuk, and announced its intention of extending it through this same tier of counties, to a connection with its main line between St. Louis and Council Bluffs. Two roads there, side by side, would obviously have been a mistake, and, after negotiations extending over some months, it was finally agreed, early in 1881, that both the Chicago, Burlington & Quincy and Wabash companies should abandon their contemplated enterprises, and that one road should be constructed by a new and independent company, called the Humeston & Shenandoah Railroad Company, which company agreed to lease and has leased, its road in perpetuity to the Chicago, Burlington & Quincy and Wabash companies, as tenants in common. By this arrangement, the Wabash Company secures a connection through, and the local business of the Humeston & Shenandoah road is equally divided between the two lessee companies. The construction of this road is progressing, and it is expected to be open for business by July 1, 1882.

Allusions was made in the last report to negotiations, then pending, for the control by this company of certain lines of road connecting with our own. Among these was the Burlington & Southwestern, the lease or purchase of which was authorized at the stockholders' meeting of Sept. 28. This road was built some years ago, from a point on our Keokuk line, about 25 miles south of Burlington, to Laclede, on the line of the Hannibal & St. Joseph Rail oad, 109 miles west of the Mississippi River at Quincy. In 1880, the parties controlling this property had perfected arrangements for reorganization, under the name of the Chicago, Burlington & Kansas City Railroad Company and to extend it about 100 miles to Kansas City; while, at the same time, the Hannibal & St. Joseph Railroad Company was engaged in promoting the construction of a new railroad from Quincy to Chicago. With the object of stopping, for the present, the construction of both these lines, and of strengthening our own position relative to Kansas City and the Southwest, it seemed to your directors desirable to get control of the Burlington & Southwestern Railroad. This has now been practically effected upon satisfactory terms, although no formal transfer has yet taken place.

Arrangement have also been perfected, during the year, for the control by this company of the St. Joseph & Des Moines Railroad, a narrow-gauge road 50 miles in length, extending from St. Joseph, Mo., to Albany, in the same state, where connection is made with our Leon, Mt. Ayr & Southwestern Branch. Ultimately, the gauge of the St. Joseph & Des Moines road will be changed, giving us a new through line to St. Joseph.

We have also to report an agreement for the lease to this company, subject to the approval of our stockholders, of the St. Louis, Keokuk & Northwestern road, extending from Mt. Pleasant, Ia., on the north, through Keokuk, Hannibal and Louisiana, on the Mississippi River, to Dardenne, where it joins the Wabash Railway, about 30 miles from St. Louis, using the Wabash track thence into the city. We have bought most of the securities of this company.

The last three named roads and the Kansas City, St. Joseph & Council Bluffs road continue for the present to be operated as separate organizations, and their earnings, expenses and mileage are not included in this report. The results of their operation would not materially affect the figures given herein.

Your directors announce with extreme regret the resignation by Mr. Forbes of the presidency of the company, and by Mr. Griswold of the chairmanship of the board, after many years of labor in the company's behalf, with which the stockholders are all more or less familiar. We are glad, however, to be able to say that both gentlemen have consented to remain in the directory, so that we continue to have the benefit of their wide experience and great familiarity with the affairs of the corporation.

RAILROAD GAZETTE

Published Every Friday.

CONDUCTED BY

S WRIGHT DUNNING AND M. N. FORNEY.

EDITORIAL ANNOUNCEMENTS.

Passes.—*All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.*

Addresses.—*Business letters should be addressed and drafts made payable to* THE RAILROAD GAZETTE. *Communications for the attention of the Editors should be addressed* EDITOR RAILROAD GAZETTE.

Contributions.—*Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to* ALL DEPARTMENTS *of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published*

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THE PROPOSED REORGANIZATION OF THE CAR-BUILDERS' ASSOCIATION.

For a good many years past, the annual convention of the Master Car-Builders' Association has had somewhat the character of what we believe in the fraternity of Free Masons is called a "Lodge of Sorrow." That is, a kind of mournful refrain has attended the annual proceedings, of which the lament has been the want of uniformity in the construction of cars. Every person interested in the matter is satisfied of the evils of the existing diversity, and of the very great advantages which would result if cars and the parts of cars were made alike. That the cost of repairs would be largely diminished, and very much facilitated, that there would be much less delay of traffic and that the risk of trainmen would be diminished, all seem to be agreed. All this has been very fully set forth in a circular, which will be found on another page, and which has been issued by a committeee of the Car-Builders' Association, to which latter an amendment, or rather addition, to the constitution of that Association was referred. As remarked, all who have given any attention to this subject are agreed that very great advantages would result if uniformity could be brought about, or if the present diversity in the construction of cars could be diminished. Why is it then that railroad officers of various classes have been contemplating this subject for so long and that so little has thus far been done in this direction? The answer, we believe, is that there is no organization or association in which those most interested are represented, through which agreement can be brought about. It may be said that there is the Car-Builders' Association, but, as the committee in their circular to presidents, managers and superintendents say, "it is a voluntary organization of the master car-builders," and "the railroad companies are not directly represented in it, except by such exertions in behalf of their employers as their master car-builders may choose to make, if they are members." Quite naturally, then, railroad officers feel that the Car-Builders' Association is, in a great measure, an irresponsible body, without authority, and that there is no obligation whatever on their part to follow its recommendations, and generally they do not do so.

The principle of "no taxation without representation" has in this century been developed into the broader and analogous one of no authority or jurisdiction without representation. In other words, at present, individuals, corporations and communities say, "If you don't allow us to take part in the deliberations, and in framing the laws or the resolutions, we will not feel bound to be governed by them." This is the attitude which the railroad companies and their chief executive officers now employ towards the Car-Builders' Association.

Further, a great company like the Pennsylvania or the Baltimore & Ohio says, "We own from 14,000 to 35,000 cars; we are not willing to go into an association and deliberate and adopt recommendations which will to a greater or lesser extent affect our property, unless the influence we can assert is somewhat proportioned to our interests." To this it has been said, that the car-builder or other representative of a small road may be a more intelligent and skillful mechanic, and in every way his opinion may have greater value than those of the representative of a great corporation.

That such might be the case is of course true, but in the very nature of things the men who are placed in control of large amounts of property by the companies that own it will be, *as a class*, more competent men than those selected to have the care of much less property. Of course there may be exceptions to this. An incompetent man may be placed in a position for which he is not suited—but generally he does not stay there long; and a very able man may occupy a place with little responsibility, but usually if his ability becomes manifest he is soon asked to go up higher. Therefore *as a general rule* it is indisputable that the class of men in charge of the cars of great companies are men of more ability than those employed by the companies having fewer cars, and, consequently, the great corporations will naturally feel that it is safer to intrust their interests to an organization in which that class of men have their due influence.

But, laying aside all questions of ability and competence, there is another view which must be taken of it, in which questions of what is wisest and best have little weight. Supposing, for example, that the matter of adopting a standard for, say, brake-shoes should come up for consideration, and that a representative of a road owning 200 cars and another from one owning 20,000 should both take part in the deliberations. Naturally each of these men would want the brake-shoe which he is using adopted as the standard. Would it be more reasonable in such a case that the one company should change its standard on 20,000 cars or that the other should alter 200? Supposing that the General Manager of the large road should object to being obliged to conform to the practice of the little one, and that an advocate of the theory that a man's position and responsibility is no measure of his ability should say to that officer that the reason for asking him to follow the practice of the small line is that "it happens sometimes that the men who have the care of a small amount of property are more competent to advise than those who have risen to higher positions," is it not certain that in such a case the manager would treat the argument as sheer nonsense? A stockholder in a corporation votes in proportion to the amount of his stock, and the justice of it is universally acknowledged. At the discussion in the convention of the Car-Builders' Association, when the proposed amendment to its constitution was brought up last year, the old story of the jackass becoming the possible voter, in case of a property qualification being required for the exercise of the right of suffrage, was quoted. A strong argument could be made for the jackass if this were the time and place for it. Be that as it may, though, it is quite certain that the great railroad companies will not consent to be controlled by the action of any association like that of the car-builders, unless their influence and voice are made proportionate to their interests.

This is exactly what the proposed amendment to the constitution of the Car-Builders' Association is intended to accomplish. It gives the right to any of the chief executive officers of a railroad to send a representative, and gives the latter a vote in proportion to the number of cars owned by the company. It will be noticed that it does not alter in any way the conditions of membership heretofore existing, but it in substance invites the railroad companies to appoint representatives and to take part in the deliberations of the Association. If this is done, it will undoubtedly increase the usefulness of the Association immensely. Instead of being a voluntary association of individuals, who occupy positions as master car-builders, it will become a representative body composed in part, at least, of members with the authority, power and wealth of the railroad companies behind them.

The revenues of the Association, as the Treasurer's report indicates, have been of the most beggarly character. The dues, last year, paid by members were only $355, and this is the only source on which reliance can be placed for meeting the expenses. It will be noticed that one clause in the proposed amendment to the constitution says that "The dues of representative members shall be in proportion to the whole number of votes they are entitled to cast." For fear that this may be regarded by some as an intended covert raid on the treasuries of the railroad companies, it may be explained that the annual dues of a members have for a number of years past been $5. As it is proposed to give representative members "one more vote for each thousand cars the company he represents owns," it will be seen that if a railroad has 10,000 cars, the annual dues of its representative on the present basis would be $55, not a very exorbitant amount. The last number of Poor's Manual gives the total number of cars in the country as 556,930. It is safe to fix the number at present as 600,000. These, if all represented, would give the Car-Builders' Association a revenue from this source of only $3,000, which is not a very exorbitant sum to devote to defraying its expenses, if we consider that it exercises some, and if the amendment is adopted would have more, influence on the care of property whose aggregate value must be somewhere about $250,000,000.

Whether the amendment to the constitution will be adopted or not will depend very much on the way it is regarded by those to whom the committee's circular is addressed. If presidents, managers and superintendents give it the attention which its importance seems to merit, and should favor the measure, it will probably be adopted by the Association; but if on the other hand the circulars should be consigned to the waste basket, and no word in its favor be sent to the committee, the whole matter will probably pass into that oblivion which "laying on the table" implies. The merits of the case are fairly presented in the circular, and by it are submitted to the judgment of the chief executive officers.

THE WINTER GRAIN MOVEMENT.

This year navigation was closed the minimum period—the four months or 18 weeks from Dec. 1 to April 1. During this season of closed navigation the receipts and shipment of grain of all kinds at the eight reporting Northwestern markets and the receipts of the seven Atlantic ports have been, in bushels, for the past nine years:

18 weeks to April 1.	Northwestern receipts.	Northwestern shipments.	Atlantic receipts.
1874	45,495,068	21,190,826	33,832,589
1875	28,319,845	14,008,748	28,229,136
1876	40,893,954	22,296,646	32,260,991
1877	35,879,926	18,570,906	33,283,254
1878	49,581,471	34,673,820	62,831,537
1879	55,895,810	31,027,026	64,442,832
1880	68,912,113	36,336,339	64,829,643
1881	59,539,304	34,379,016	52,852,255
1882	57,228,629	39,404,813	32,757,752

We see here that the *Northwestern* winter grain movement has not been light this year, by any means. The receipts of the great markets there were but little less than last year, and though a sixth less than in 1880, they were larger than in any previous year. Further, the shipments of these markets have been larger this year than ever before—a tenth larger than in 1880 even, and 5,000,000 bushels (15 per cent.) more than last year, and this in spite of the fact that the March shipments were the smallest since 1877. But when we come to the Atlantic receipts, we find that they are this year no less than 20,000,000 bushels (38 per cent.) less than last year, nearly 50 per cent. less than in 1880, and that in the nine years the receipts were less only in 1875 (4,500,000 bushels less) and in 1876, when they were nearly the same.

Thus we come at once upon the unprecedented fact that while a very large amount of grain has gone to market it has not found its market, as has always been the case heretofore on the Atlantic seaboard. The commercial journals have been nearly all winter complaining that exaggerated prices in the West have kept the grain from coming forward and prevented its exportation. But the records show that the grain has gone forward, and that more freely than ever before. The high prices have prevented its exportation, doubtless, and have made receipts very light at all the Atlantic ports; but they have not prevented the sale of the grain by the farmers and Western merchants. The fact is that we wanted the grain more than Europe did, and have paid higher prices for it than could be had abroad. That it has entered into consumption is made evident by the fact that the stock of grain "in sight," that is, in store at Western, Eastern and intermediate markets, on the 1st of April was 17,000,000 bushels less than at the same time last year.

It is hardly to be wondered at, however, that Eastern merchants felt that the winter movement must have been light, for there had been no previous year on record when the receipts of the Atlantic ports were not much greater than the shipments of the Northwestern markets. In the several winters (four months) the excess of Atlantic receipts over Northwestern shipments had been:

Year.	Bushels.	Year.	Bushels.
1874	12,641,763	1878	28,157,717
1875	13,560,388	1879	33,415,000
1876	9,904,345	1880	28,493,304
1877	14,712,348	1881	18,473,239

In 1882, the Northwestern shipments *exceeded the Atlantic receipts* by 6,647,061 bushels.

The great consumption of the interior and the South, due to the short crops there, sufficiently explains this

change, but as we had had for many years a large surplus for exportation, it was not easy to believe that there could be a heavy grain traffic anywhere on this side of the Rocky Mountains without heavy receipts at the seaboard.

It may be noted here that the movement this year has been one which could have been made especially valuable to the railroads, because it was one which, for the most part, only they could effect. Rates on exports are closely limited by the competition in the European markets of grain coming from California, India, Australia and Russia; but the grain required for interior consumption throughout the Union when navigation is closed is substantantially a local traffic, and can be made to pay rates almost as high as average rates. In fact, we know that the great shipments last winter from the Northwestern markets were carried at about one-third of average rates, and without any profit. If the rates were higher in the last month of the four—or, probably, in the last six weeks of the 18—the shipments were light then, too—averaging but 1,712,000 bushels a week, against 2,430,000 in the previous 12 weeks. And in this connection it is interesting to note what the rate of movement has been in the successive months since navigation closed, as is shown below, where the average weekly movement is given, because the first and fourth months, as the record is made, have five weeks, and the other two months but four:

Average Receipts and Shipments per Week.

1881-82.	Northwestern receipts.	Northwestern shipments.	Atlantic receipts.
In December	3,239,630	1,845,381	2,198,117
In January	4,248,772	2,453,613	1,666,688
In February	3,525,738	2,535,820	2,024,154
In March	1,986,488	1,698,080	1,400,720

The sudden and great falling off since February is noticeable, and it is the more so because March is usually a favorable month, and in 1880 was the month of largest rail shipments ever known.

Atlantic receipts in March alone (five weeks ending April 1) have been for five years:

1878	1879.	1880.	1881.	1882.
19,439,654	23,223,470	25,351,801	21,218,706	7,003,623

Thus, the March receipts this year are but one-third what they were last, and are 72½ per cent. less than in 1880, 70 per cent. less than in 1879 and 64 per cent. less than in 1878. This shows emphatically to what extent the grain business of the seaboard has fallen off.

The receipts at the several Northwestern markets in the four months this year and last, have been:

	Bushels.		P. c. of Total.	
	1881-82.	1880-81.	1881-82.	1880-81.
Chicago	23,174,541	23,823,478	40.5	40.0
Milwaukee	7,399,132	6,094,613	12.9	10.3
Toledo	2,990,562	5,968,796	5.2	10.0
Detroit	1,685,393	3,049,447	3.0	5.1
Cleveland	1,155,606	1,558,990	2.0	2.6
St. Louis	11,857,439	11,475,355	20.7	10 3
Peoria	8,638,275	7,277,615	15.1	12.2
Duluth	327,881	291,000	0.6	0.5
Total	57,228,629	59,539,304	100.0	100.0

With a decrease of 3,311,000 bushels in the total, there is a gain of 1,305,000 at Milwaukee and of 1,360,000 at Peoria, and a loss of 2,978,000 bushels (50 per cent.) at Toledo, and of 1,364.000 at Detroit, the latter doubtless due to the fact that the country from which Toledo and Detroit draw nearly all their receipts had particularly bad crops last year.

At Chicago and St. Louis the changes are insignificant. Chicago and Milwaukee together received 53.4 per cent. of the whole this year, against 50.3 last year. Last year their receipts were greatly reduced by the snow blockades; but this year the unusually large Southern demand should have favored the receipts at the more southerly markets, and it doubtless has. Corn grown in the vicinity of Peoria required for Southern Illinois or Kentucky or Texas is pretty sure not to go to Chicago or Toledo. The latter place continues to show a greater decline than any other. Our figures for the weekly and monthly receipts of the several Western markets do not extend back far, but in the first three months of the year Toledo had 11.1 per cent. of the total Northwestern receipts in 1880, 11.3 per cent. in 1881, and but 5.5 per cent. in 1882.

The Atlantic receipts were so light in March that the changes since we reviewed them five weeks ago are not very important, though the comparison with last year shows some striking facts. These receipts for the past two years have been:

	1881-82.	1880-81.	Inc. or Dec.	P. c.
New York	15,044,034	21,443,191	Dec. 6,399,157	29.9
Boston	5,933,366	7,371,296	Dec. 1,437,930	19.6
Portland	1,039,650	995,262	Inc. 44,388	4.5
Montreal	255,153	197,138	Inc. 58,015	29.4
Philadelphia	3,662,427	8,486,050	Dec. 4,823,623	56.8
Baltimore	4,048,300	13,546,950	Dec. 9,498,650	70.1
New Orleans	2,774,822	5,712,599	Dec. 2,937,777	51.4
Total	32,757,752	57,752,486	Dec. 24,994,734	43.3

The decrease in the total receipts of the Atlantic ports for the four months, compared with last year, is 25,000,000 bushels, or 43½ per cent. Except Portland and Montreal, whose receipts are always unimportant in winter, every port shows a decrease, which amounts to no less than 70 per cent. at Baltimore, 57 at Philadelphia, and 51½ at New Orleans, but is only 30 per cent. at New York.

The percentage of the total received at each port for six successive years has been:

	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.
New York	31.0	42.2	40.4	39.5	37.1	46.0
Boston	13.0	7.5	9.6	9.3	12.8	18.1
Portland	1.8	2.1	1.4	2.3	1.8	3.2
Montreal	0.3	0.1	0.1	0.4	0.3	0.8
Philadelphia	17.8	18.2	18.0	15.0	14.7	11.1
Baltimore	29.9	20 7	22.8	21 6	23.4	12.3
New Orleans	6.2	9.2	7.7	11.9	9.9	8.5
Total	100.0	100.0	100.0	100.0	100.0	100.0

The percentages of New York, Boston, Portland and Montreal are larger this year than in any of the previous years; the percentages of Philadelphia and Baltimore are smaller this year than in any of the other five. The percentage at New Orleans is smaller than in 1881, 1880 and 1878, but larger than in 1879 and 1876.

Comparing the percentage of New York with that of Philadelphia and Baltimore taken together, we have:

	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.
New York	31.0	42.2	40.4	39.5	37.1	46.0
Phila. and Baltimore	47.7	38.9	40.8	36.6	38.1	23.4
The three	78.7	81.1	81.2	76.1	75.2	69.4

New York this year received nearly twice as much as Philadelphia and Baltimore together; last year the two latter places received a little more than New York; in 1876–77, Philadelphia and Baltimore together received one half *more* than New York, and Baltimore very nearly as much; and that year was very much like this year—that is, it was one of poor crops and very light grain movement, and included the closing months of the railroad war. Then, however, the aggregate Atlantic receipts being nearly the same as this year, the exports were larger, which probably alone made it possible for Philadelphia and Baltimore to get so much grain then.

Comparing the percentage of New York and Boston, taken together, with that of Philadelphia and Baltimore together, we have:

	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.
New York and Boston	44.0	49.7	50.0	48.8	49.9	64.1
Phila. and Baltimore	47.7	38.9	40.8	36.6	38.1	23.4
The four	91.7	88.6	90.8	85.4	88.0	87.5

Thus this year New York and Boston have secured a very much larger share of the winter grain receipts than ever before, and nearly three times as much as Philadelphia and Baltimore together, which in 1876–77 received more than New York and Boston. In 1878–79 the two northern ports received nearly a quarter more than the other two ports, in 1879–80 a third more, last year 30 per cent. more, this year 174 per cent. more.

Doubtless the great comparative gain of New York and Boston this year is largely natural and also largely artificial: largely natural, because these places require more than twice as much for domestic consumption as the other two (at the average rate of 56,000,000 bushels per year at New York and Boston for the five years ending with 1880, against 24,600,000 at Philadelphia and Baltimore, with very little change from year to year, though the total receipts of those four ports varied from 187,000,000 to 316,000,000 bushels within the same five years). Thus, when the exports fall off the proportion of the total receipts at New York and Boston naturally increases, for if they disappeared entirely their proportion would be nearly 70 per cent. of the whole. But their proportion has been increased artificially by the fact that the chief contracts at the lowest rates during the latter part of the railroad war, covering most of the traffic in all but the last month of the four here discussed, were by the New York Central's connections, which carry chiefly to New York and Boston, and by the Erie, which carries chiefly to New York, and were much less by the Pennsylvania and scarcely at all by the Baltimore & Ohio, which carry chiefly to Philadelphia and Baltimore. A heavy export business would increase the proportion going to these last-named ports, and so will a strict maintenance of rates, *if there are considerable exports.* But Philadelphia and Baltimore cannot possibly have a large part of the grain receipts when exports are trifling, as they seem likely to be for several months to come, and the opening of navigation will tend to reduce such proportion of the grain export trade as they did secure in the winter.

Indeed, the significance of the great decline of receipts at these cities is heightened greatly by the fact that it occurred while lake navigation was closed, and while, therefore, it costs at least as little to carry grain to them as to any other port. For eight months to come, with harmony among the railroads, New York will be the terminus of the cheapest route. Contracts are already reported for carrying corn from Chicago to New York by lake and canal for 7 cents a bushel, which is at the rate of 12½ cents per 100 lbs. The railroads cannot afford to make their rate less than 20 cents per 100 lbs., even in the summer, or 17 cents, by the existing scale of differences, to Baltimore. With such a difference they can hardly carry much export grain, and if they carry none it will be the better for New York, and, under the circumstances, doubtless better for the Philadelphia and Baltimore railroads, which will be able to get a share of the flour and provision exports, and all the large grain shipments to interior points in their several districts, at rates that will yield some profit.

PETROLEUM AS FUEL.

The enormous quantities of petroleum which are now continually produced, and the occasional opening and development of new fields from which this substance is obtained (though generally accompanied by a greatly reduced production in the old fields) have led many to consider seriously what is to be done with this apparently magnificent combustible. And it is, perhaps, natural that this enormous production with consequent low price per barrel of a substance which contains no ash worth mentioning, and which, by its composition, is all combustible, should lead to many attempts to utilize what is apparently so valuable a fuel as a means of heat production. Hence we have had from time to time prospectus after prospectus of companies which will to revolutionize the heat production of the world, and give us light, heat and power at almost no expense. Petroleum-burning furnaces for the manufacture of iron, and petroleum-burning locomotives, which were to be run at a fraction of the present cost for fuel, have claimed the attention of the world for a brief space and then passed into forgetfulness. This man's process and that man's process for utilizing petroleum as fuel have succeeded in drawing money from the pockets of capitalists; but as yet, we believe, none of the processes or attempts have succeeded in returning any money to the same pockets in the shape of dividends. The only impression these futile attempts have made seems to have been to convince the unfortunate stockholders and experimenters that there was someting in the problem which they did not yet understand. And they must be regarded as fortunate if they became convinced before they had invested too much money on what we cannot but regard as an attempt to use crucible instead of Bessemer steel for rails, or gold instead of copper in an alloy for bearing metal.

But why cannot petroleum successfully be used as fuel in competition with coal, and what are the possibilities as to the use of petroleum for generating steam in locomotives? Why have so many attempts to utilize petroleum as a means of producing heat resulted in failure? The answer, in brief, is because at present prices the heat-producing power of a dollar's worth of coal is so much in excess of the heat-producing power of a dollar's worth of petroleum that although coal is very wastefully burned in actual practice and although the heat generated is very imperfectly utilized, especially in locomotives, yet no one has hitherto succeeded in burning petroleum in such a way as to compete with coal in cost of heat production. In other words, there is actually much more heat-producing power in a dollar's worth of coal than in a dollar's worth of petroleum.

The following considerations will, we think, make this point clear. Coal may be regarded as a material consisting of combustible and non-combustible substances. The combustible substances in the case of bituminous coal are principally carbon and hydrogen, while the principal non-combustibles are ash and moisture. In the case of anthracite coal the principal combustible is carbon and the principal non-combustible is the ash. In the case of petroleum almost the whole substance is combustible, and consists of carbon and hydrogen. Now a pound of carbon when burned completely to carbonic acid will generate 14.544 heat units, a heat unit being regarded as the amount necessary to raise a pound of water one degree Fahr.

Again, a pound of hydrogen when completely burned will generate 62.030 heat units. With these data in hand, and knowing how much carbon and hydrogen a hundred pounds of coal or petroleum contains, it is easy to calculate the relative theoretical heat-producing power of the two substances. We assume that the percentage composition of bituminous coal is approximately as follows:

Carbon	85 per cent.
Hydrogen	5 " "
Ash, moisture, etc.	10 " "

Also that the percentage composition of anthracite is approximately:

Carbon	93 per cent.
Ash, etc.	7 " "

And that the percentage composition of petroleum is:

Carbon	86 per cent.
Hydrogen	14 " "

From these data it is easy to compute the relative theoretical heat-producing power of equal quantities

of these three substances. This we find to be as follows, one pound of each substance being considered, viz.:

One pound bituminous coal will produce theoretically 15.465 heat units.

One pound anthracite coal will produce theoretically 13.526 heat units.

One pound of petroleum will produce theoretically 21.192 heat units.

We are aware that the figures given above are a little high, because the computation is based on the supposition that the carbon and hydrogen in the coal and petroleum are in the free state, whereas in the bituminous coal and petroleum they are chemically combined, and it will absorb a small amount of heat to take them apart. However, the error from this source will not seriously affect the comparison which we are trying to make.

If now anthracite coal be regarded as costing to large consumers $4.50 per ton, and bituminous coal $4.75 per ton, and crude petroleum 7 cents per gallon, which are very near to New York prices at present, it results that a dollar's worth of each of these three products will be as follows, petroleum being assumed to weigh 7¼ lbs. to the gallon:

One dollar's worth of anthracite coal is 444 lbs.

One dollar's worth of bituminous coal is 421 lbs.

One dollar's worth of petroleum is 103 lbs.

Then various weights of these three kinds of fuel, or a dollar's worth of each, on the suppositions made above as to heat-producing power, will develop heat as follows:

444 lbs. anthracite coal give 6,005.544 heat units.

421 lbs. bituminous coal give 6,510.765 heat units.

103 lbs. petroleum give 2,182.776 heat units.

Or, in other words, in accordance with the suppositions and data given above, the theoretical heat-producing power of a dollar's worth of anthracite or bituminous coal, at present prices, is nearly three times as great as the heat-producing power of the same value of petroleum. Here, then, is the reason why so many petroleum-burning schemes have resulted in failure, viz., petroleum does not have in it, in proportion to its cost, the heat-producing power that coal has. It simply is not there; and as long as the present ratio of prices exists, engineers and experimenters who attempt to use petroleum as fuel must remember that they have a powerful rival in coal, and that there is in the very nature of the case a disadvantage in petroleum, which is well nigh staggering, and which may well cause them to hesitate on the very threshhold of the problem.

We are perfectly well aware that the theoretical presumption of the subject just given is not the practical one, and that there are certain considerations in favor of petroleum from a practical point of view, which will somewhat modify the very wide difference between coal and petroleum given above. To these considerations we will devote a few words, as showing the possibilities ahead of petroleum for heat production.

First, it is probable that, at least, 15 per cent. and possibly 25 per cent. of the coal that is now put into the fire doors of locomotives escapes from the smokestack unburned in the form of cinders, black smoke and unburned gases, and as unburned coal through the grate. If now petroleum can be burned in such a way that all of it is consumed, and very nearly its theoretical heat-producing power is developed, then certainly quite a percentage of the difference between coal and petroleum disappears.

Again, locomotives for burning coal are by necessity constructed with quite large flues, in order to avoid clogging by the cinders. This, of course, makes the heating surface less; and it is entirely possible that a petroleum-burning locomotive may be so constructed with smaller flues and more of them, with consequent greater heating surface, that a larger percentage of the heat generated will be utilized in the case of petroleum than in the case of coal. Still again, when rapidly burning a solid combustible on a grate, when a part of the combustible is gaseous or becomes so, and consequently needs air above the fire for its complete combustion, it becomes exceedingly difficult to so proportion the air drawn through and over the fire that just the right amount shall be used. Doubtless, therefore, in very many cases far too much air is used, and a reduction in the temperature of the hot gases takes place, with consequent loss of efficiency. If in the case of petroleum a proper proportion can be maintained between air and combustible, so as to give higher temperature to the products of combustion as they enter the flues, a gain in efficiency will be effected, which will help again to diminish the difference between coal and petroleum.

One consideration is certainly very strongly in favor of petroleum as fuel, and that is freedom from smoke and cinders. If, as seems to be allowed by all, petroleum can be burned so as to give no black smoke or cinders, then certainly railroad managers can afford to pay a little more than they are at present doing for the heat used in locomotives, especially in those used on passenger trains or within cities.

The question whether coal will advance in price in the future, and petroleum diminish, we do not discuss, any farther than to say that well-informed oil men inform us that petroleum cannot be produced at the wells for less than 75 cents per barrel, and the difference between that price and the present one in the oil regions is not enough to hold out very strong encouragements for a diminution in the price of petroleum.

But imagine petroleum at present an economical fuel in competition with coal at present prices. We must then consider the effect of this new use of petroleum on the supply and the cost. The production of petroleum has been recently pushed to the uttermost, and amounts to 30,000,000 barrels (42 gallons each) per year. In heat-producing capacity, the above figures show that it requires 193 gallons of petroleum to equal one ton (2,000 lbs.) of bituminous coal when combustion is perfect; so that the annual production is equal to about 6,500,000 tons of coal for making heat, with whatever addition may be due to the practically more perfect possible combustion of petroleum, which could hardly make the coal equivalent more than 8,000,000 tons. This is about one-ninth of the production of coal in the United States in the census year. But the petroleum production is now nearly all absorbed for illumination. If the equivalent of even 2,000,000 tons of coal a year should be required for making steam, the price would certainly rise greatly, for this is equal to one-fourth of our exports. And if the petroleum were required as fuel for other purposes than making steam, it would have to compete with the whole 71,000,000 tons of our coal production; that is, without an immense increase in petroleum production, it cannot possibly come into *general* use as a fuel, or even for making steam, without an immense increase in production.

In places where the space occupied by the fuel has an influence, petroleum has some advantages. A cubic foot of petroleum of 31° gravity weighs about 54 lbs., while, according to Haswell, about 50 lbs. of coal can be put into a cubic foot of space. Taking into account the heat-producing power of the two substances, however, we find that equal volumes of coal and petroleum will generate heat theoretically in the ratio of about 70 to 114, or, in other words, the same theoretical heat-producing power can be stored in about 40 per cent. less space in the shape of petroleum than in the shape of coal. This certainly is an advantage in favor of petroleum which, at least for marine boilers, should not be overlooked.

Notwithstanding these several minor advantages, however, it is evident that at present prices the excess of cost of the heat-producing power of petroleum is so great that all efforts to substitute the liquid for the solid fuel must almost inevitably result in financial disaster.

The Winter Packing Season.

The report of the Cincinnati *Price Current*—the standard authority—gives the following as the number of hogs packed at each of leading packing towns of the West for the four months of the winter "season," from Nov. 1 to March 1:

	1881-82.	1880-81.	Inc. or Dec.	P.c.
Chicago	2,368,160	2,781,064	D. 412,904	14.8
Cincinnati	384,878	522,425	D. 137,547	26.3
Kansas City	345,817	339,678	I. 6,139	1.8
St. Louis	316,379	474,159	D. 157,780	33.3
Milwaukee	323,619	325,729	D. 2,110	0.6
Indianapolis	249,178	388,763	D. 139,584	35.9
Louisville	131,007	215,670	D. 84,663	39.3
Total	4,118,978	5,047,488		928,510	18.4
Other places	1,628,782	1,871,968	D.	243,186	17.0
Grand total	5,747,760	6,919,456	D.	1,171,696	13.0

The large decrease of 18.4 per cent. at the seven leading packing towns was distributed among all the places named except Kansas City, which shows a slight increase. The percentage of decrease was largest at the more southerly places, in whose vicinity the corn crop was poorest—was, in fact, very poor. Chicago and Milwaukee together, which packed 65.3 per cent. of the whole this year, suffered but 44.7 per cent. of the decrease. St. Louis, Indianapolis and Louisville, which packed but 17 per cent. of the whole, suffered 41 per cent. of the loss. The changes in the percentages in the last season cannot be regarded as indicating any tendency of the business, but are sufficiently accounted for by the varying yield of the corn crop, which was tolerable in Wisconsin and Minnesota and Northern Illinois and Iowa, and was worse thence southward, becoming wretched in Southern Illinois and Indiana and in Kentucky.

The total number packed at these places was smaller this year than in any previous since 1876-77. The largest number packed was in 1878-79 (5,541,142), and the decrease since then is 25.7 per cent. This, however, is not the whole of the Western packing, by any means. The smaller towns packed 27.1 per cent. of the whole in the winter season last year, and 31.4 per cent. in 1879-80, and they packed in the aggregate 28.3 per cent. this year. They include all packing points west of the Mississippi except St. Louis and Kansas City, and it is west of the Mississippi that there is the greatest increase of hog-growing, if not of packing. We see that the decrease there was but 13 per cent. last year, against 18.4 per cent. at the large places.

The decline at the seven leading packing cities since 1878-79 is equivalent to about 20,500 car-loads of hogs received at those cities, and a somewhat smaller decrease in the amount of products shipped from them. The decrease at Chicago and Milwaukee since last year is equal to about 6,000 cars of hogs and corresponding shipments of products, equivalent in amount to a decrease of about 2,700,000 bushels in wheat or corn receipts, but in earnings to one-third more, probably. Such a decrease in grain would be regarded as altogether insignificant. At Chicago there was an increase of 28,000,000 bushels from 1877 to 1878, and of 29,000,000 bushels from 1879 to 1880, and a *decrease* of 14,000,000 from 1880 to 1881. But as the decrease in hogs comes in the same year as that in grain, it aggravates the decline of traffic due to the failure of the grain crops. The total decrease in the number of hogs packed at all Northwestern towns is equal to about 26,000 car-loads.

The progress of this industry can be traced in the following statement of the number packed in the winter season for ten successive years:

Years	Number.	Years.	Number.
1872-73	5,410,311	1877-78	6,505,446
1873-74	5,466,200	1878-79	7,480,948
1874-75	5,566,286	1879-80	6,950,451
1875-76	4,880,135	1880-81	6,919,456
1876-77	5,101,308	1881-82	5,747,760

Thus the number packed this year is less than in any previous season since 1876-77—17 per cent. less than last year, 17½ per cent. less than in 1880, and 23 per cent. less than in 1879, when the number packed was greatest. The great decline this year is doubtless due to the short crop and high prices of corn, of which fat hogs are made. It does not, by any means, indicate a tendency to give up hog-growing, and the stock can be increased to its old proportions within a year or two at most, hogs being the most prolific of domestic animals.

Further, the "hog crop" is not fully exhibited by the winter packing alone. Within the last ten years the summer packing—the packing in the eight months from March to December inclusive—has assumed enormous proportions. In 1872-73 only 525,500 hogs were packed in the summer season, against 5,410,311 in the winter season; last year, 4,772,934 were packed in the summer season, against 5,747,760 in the winter season. That is, the percentage in summer has risen from 8·5 to 43·8 per cent. of the whole year's packing. The packing in the last summer season was a larger proportion of the whole than ever before, but was a considerably smaller number than the year before. The number packed for the twelve months ending with February for five successive years have been:

1877-78.	1878-79.	1879-80.	1880-81.	1881-82.
9,048,546	10,858,052	11,001,609	12,160,068	10,220,892

The year 1877-78 showed an increase of 20 per cent. over the year before, when the packing was more than it had ever been before; so we may say that these five years cover the recent period of great pork production. Taking the whole year, we see that there was till this year constant but not regular progression—20 per cent. increase from 1877 to 1878, 1.3 per cent. from 1878 to 1879, and 10½ per cent. from 1878 to 1880; the decrease of 1,940,000 hogs the last year (16 per cent.), more than equals the gains of the two previous years, and while the packing of 1880-81 showed a gain over 1877-78 of 34.4 per cent., that of last year was but 13 per cent. more than in that year.

The decrease in traffic caused by the smaller hog crop for the whole of last year amounts to about 43,000 car loads—a traffic distributed among a great many railroads, though mostly among lines in Ohio, Indiana, Illinois, Iowa, Missouri, Nebraska and Kansas. The hog products are distributed by nearly all the roads to the East and South, and go also to the mining regions of the far West and to the Pacific coast; but they form a very important item in the east-bound freight of the trunk lines, and their share will doubtless be reduced most, because most of the decrease in production is taken from the exports.

The Grand Trunk Meeting.

The Grank Trunk report for the half-year ending with December last covers a period during the whole of which east-bound through freight was carried at less than cost, and during most of which rates on west-bound freight and on through passenger traffic in both directions were wretchedly low. It should be remembered, however, that the through business yields probably a smaller proportion of the earnings on the Grand Trunk than on some of the trunk lines. The total traffic in the half-year, compared with the corresponding half of 1880, is reported in Sir Henry Tyler's speech to have been as follows:

	1881.	1880.	Increase.	P. c.
Ton-miles	553, 00,000	527,000,000	26,000,000	5.0
Passenger-miles	102,000,000	81,000,0 0	21,000,000	25.0

As the average rate per ton per mile was but 0.63 cent in 1881, against 0.75 in 1880, the increase in freight traffic did not cause an increase in freight earnings, but resulted in a decrease of about $452,000 (11½ per cent.). Under ordinary circumstances so large a decrease in the through rates would have resulted in a much larger increase of the traffic. And the increase was only partly in through traffic, the ton-miles of through and local having been:

	1881.	1880.	Increase.	P. c.
Through	312,000,000	300,000,000	12,000,000	4.0
Local	241,000,000	227,000,000	14,000,000	6.2

But even this moderate increase in the freight traffic was

due almost entirely to the growth of the movement to the west, the ton-miles east and west having been:

	1881.	1880.	Inc. or Dec.	P. c.
East	379,400,000	395,500,000	Dec. 16,100,000	4.0
West	173,600,000	130,500,000	Inc. 43,100,000	33.0

The very low rates to the East did make the traffic in that direction larger than it would have been at higher rates, because they diverted shipments from the lakes and the St. Lawrence; but the smaller crops more than counterbalanced this. The increase in the west-bound shipments was common on the trunk lines.

The passenger war did not begin so early as the freight war, and the through passenger traffic is not so large a proportion of the total passenger traffic of the Grand Trunk as its through freight is of its total freight. But the increase in passenger traffic following the low rates was very large—25 per cent.—while the increase of freight we have seen to be inconsiderable. The reduction in the average passenger rate was but 9½ per cent., notwithstanding the fact that this road carried passengers between Boston and Chicago, about 1,150 miles, several months for $5. Of course the traffic so carried at 0.44 cent per mile could have been but a small share of the total travel, else the average rate would not have been 1.81 cents per mile for all travel; but doubtless most of the great increase in passenger mileage was due to these low through rates, though without them the heavy emigration, etc., would have caused a considerable increase.

Sir Henry Tyler notes the fact that the increase of 26,000,000 ton miles was made with an actual *decrease* of 1,000,000 miles in car mileage. But we have shown above that the increase in freight was wholly in west-bound, and last year there was not enough to fill half the cars brought from the West. If all the cars going east could be utilized for west-bound freight doubtless the freight traffic might be nearly doubled without increase in car mileage.

Sir Henry Tyler's remarks about the new contract of the trunk lines we print in full and it needs no explanation. It is somewhat remarkable, however, that at the time he was speaking his road was carrying such an exceptionally large proportion of the freight from the West as to convince the agents of all the other roads that it and it alone had been cutting rates. It is said that the Grand Trunk made contracts after the apparent settlement of the railroad war, because its managers were apprehensive that the negotiations were not made in good faith, but that some one intended by the pretense of peace to throw the others off their guard and then make contracts at lower rates rapidly and secure the lion's share of the business; and the Grand Trunk did not intend to "get left" this time. It is a sorry commentary on railroad morality, but it must be confessed that there have been precedents which tend to justify the Grand Trunk's suspicion. The company must have already accepted the new agreement before these contracts were made, and by the terms of the agreement, it will not receive a ton more or less freight in the aggregate after March 12 than is alloted it by arbitration, however much or little it may carry in any one week or month. For instance, should it be awarded 10 per cent. of the freight out of Chicago, it will have to turn over freight hereafter to make up for the excess it has carried during the past four weeks, or pay in money, full rates being charged on all the excess, which everyone believes to have been taken at less than full rates. But this policy may have been adopted deliberately; that is, it may have been thought better to incur the probability even of the needless loss of a dollar a ton or so on 7,000 tons of freight a week for some weeks, rather than the possibility of losing a large part of the road's legitimate share of the freight for some months. It is possible to lose by too great trust as well as by too little.

A somewhat startling proposition was made by Sir Henry Tyler, namely, to lease the Great Western on certain definite terms. It is not surprising that the proposition should be made, but that it should be made in definite terms first to the shareholders of the lessee company, and apparently without any preliminary negotiations or agreement with any officers of the proposed lessor company, is probably without example in the history of railroad companies, and sounds more like a general's demand for an unconditional surrender than a beginning of a peaceful contract between equals. We are not prepared to say, however, that it would not be well for the Great Western to accept Sir Henry Tyler's proposition. This is, substantially, that the Grand Trunk should take 70 per cent. and the Great Western 30 of the earnings (net, we suppose) of the two systems, and that 3 per cent. should be paid on the Great Western common stock before anything on the Grand Trunk preferred stock. We believe the Great Western has not divided as much as this since 1873. For the last half of 1880 it paid 1½ per cent., but for the first half only ½ per cent.; in the first half of 1881 ¾ per cent. was paid, and in the last half ½ per cent. Its profits for five years down to the last half of 1879 permitted the payment, we believe, of but $90,333 of the ordinary shares, and now Sir Henry Tyler proposes to guarantee these shares about $900,000 a year.

Record of New Railroad Construction.

This number of the *Railroad Gazette* contains information of the laying of track on new railroads as follows:

California Southern.—Completed to a point eighty-seven miles from San Diego Bay, Cal., an extension of 39½ miles.

Chippewa Valley & Superior.—Track laid from Eau Claire, Wis., southwest 30 miles.

Danville, Mocksville & Southwestern.—Track laid from Cascade Junction, Va., southward to Leaksville, N. C., 8 miles. Gauge, 3 ft.

East Tennessee, Virginia & Georgia.—This company's *Macon & Brunswick* line is extended from Holston, Ga., northwest 21 miles. Gauge, 5 ft.

Georgia Pacific.—Extended from Chattahoochie Bridge, Ga., west 7 miles.

New York, Chicago & St. Louis.—Track has been laid on the gap between the ends of track east from Hammond, Ind., and west from Ft. Wayne, 3.85 miles; also west from Hammond, Ind., 0.50 mile; east from Vermillion, O., 3.38 miles; east from Erie, Pa., 9.02 miles, and east of Brocton, N. Y., 4.50 miles, making 21.25 miles in all.

New York, Lackawanna & Western.—Extended from Elmira, N. Y., westward 32 miles. Track also laid from Alden, N. Y. west by north to near Buffalo, 13 miles.

Oregon Railway and Navigation Co.—The line from the Cascades to the Dalles is 4 miles longer than heretofore reported.

Stony Clove & Catskill Mountain.—Extended from Edgewood, N. Y., to Hunter, 1½ miles.

Wilmington & Weldon.—The *Scotland Neck Branch* is extended from Conoconara Swamp, N. C., southeast to Scotland Neck, 10 miles.

This is a total of 187¼ miles of new railroad, making 1,545 miles thus far this year, against 778 miles reported at the corresponding time in 1881, 964 miles in 1880, 326 miles in 1879, 258 miles in 1878 and 232 miles in 1877.

CHICAGO SHIPMENTS EASTWARD for the week ending April 1 were 32,447 tons this year, against 34,325 the previous week, 53,838 in the week ending April 2 last year, and 65,626 in the corresponding week of 1880. The shipments this year have declined steadily since January, while they usually increase and become largest in the month before the opening of navigation, which was April last year, and March in 1880 and 1882.

There was but one week in the whole of 1881 when the shipments were so small, and that was the week of the strike of yard switchmen, when very few trains could be dispatched; and in 1880, when the rates were 30 to 40 cents throughout the year, there were but seven weeks when they were so small—one in January, one in September, and five just after navigation opened, when, if rates are maintained, rail shipments are almost sure to fall off.

For each of the first three months of the year the shipments have been, for four successive years:

	1879.	1880.	1881.	1882.
January	192,512	163,378	263,872	321,166
February	198,541	166,541	204,331	225,816
March	255,458	318,983	212,021	188,156
Three months	649,511	648,902	680,224	735,138

In 1879 rates were badly demoralized nearly all the time, beginning with comparatively slight reductions from the regular rate, but by February reaching very low figures, though higher than in January and February this year. In 1880 rates were firmly maintained on the basis of 40 cents per 100 lbs. from Chicago to New York in the first two months, and at 35 cents in March, when the shipments were larger than they had ever been before or have been since except last January. Last year the regular rate was 35 cents throughout the three months, but there were some shipments (though probably but a small proportion of the whole) shipped with a rebate of probably 5 cents per 100. This year probably little of the grain carried in January and February paid more than 12½ cents per bushel; much, and perhaps most, only 10 cents, and some no more than 8 cents. In March the shipments generally probably paid 20 cents until the 13th and 25 afterwards.

The aggregate shipments of the three months were, we see, larger this year than any of the others; but the increase was wholly in January and February. In March the Chicago shipments this year were 23,865 tons (11¼ per cent.) less than last year, 130,827 tons (41 per cent.) less than in 1880, and 70,302 tons (27¼ per cent.) less than in 1879. There was only one month last year when the Chicago shipments were as small as last March, and that was in May, the first month of open navigation; but in 1880, when rates were well maintained, there was but one month while navigation was open when they were so large. If the opening of navigation has its usual effect, the rail shipments for Chicago for a few months to come will probably be the smallest for several years.

Of the shipments for the week ending April 1 last the Chicago & Grand Trunk had 22.7 per cent., the Michigan Central 17, the Lake Shore 15, the Fort Wayne 30.8, the Pan-handle 7.6, and the Baltimore & Ohio 6.9 per cent. The Grand Trunk again has an extraordinarily and artificially large proportion of the shipments, as was foreshadowed by the Chicago Board of Trade report published last week. The percentages shipped by the several roads for nine successive weeks have been:

Week to—	C. & G. T.	Mich. Cen.	Lake Shore.	Ft. Wayne.	P. C. & St. L.	B. & O.
Feb. 4	9 6	24.9	27.2	21.8	12.1	4.4
" 11	17.0	24.1	19.9	21.1	10.4	6.5
" 18	11.8	30.9	19.7	22.2	9.1	6 3
" 25	6 1	37.3	17.8	24.7	7.9	6.2
March 4	11.2	27.8	14.8	32.0	8.6	5.8
" 11	7.0	25.7	24.4	28.2	8.3	6.4
" 18	17.3	28.1	13.9	29.7	7.3	3.7
" 25	26.4	22.2	13.1	24.3	8.0	6.0
April 1	22.7	17.0	15.0	30.8	7.6	6.9

During the whole year 1879 the Grand Trunk had 10 per cent. of the Chicago shipments; in 1880, 5.7 per cent.; in 1881, 10.1 per cent. In the last three weeks, thus, the Grand Trunk's percentage has been more than twice as great as its average in any previous year, and the statement of the shipments billed from Chicago during the week ending April 8 credit the Grand Trunk with 24 per cent.

This statement (which excludes shipments from points west billed through Chicago, which are included above) reports the shipments in that week to have been 28,172 tons, against 25,837 the week before and 53,963 tons in the corresponding week of last year. This is the first week that navigation was open this year, though the first clearances for the lower lake were made on the last day of the previous week. The large percentage of the Grand Trunk is at the expense of the Michigan Central and the Lake Shore. Flour formed 5,557 tons of the shipments, and grain 16,607 tons. The flour shipments last year were three times as great and the grain shipments nearly twice as great, the provision shipments only one-eighth greater. The Grand Trunk took no less than 34⅓ per cent. of the grain.

Though the traffic now is light, it must be more profitable than in January and February, when it was the largest ever known. Indeed, the gross receipts from it must be now nearly as large as then, though but half as much is carried. With the restoration of rates on live stock, the east-bound through traffic, though sure to be small for some months, can be made more profitable than at any time since last June.

SIR HENRY TYLER'S SPEECHES at the half-yearly meetings of the shareholders of the Grand Trunk Railway Company almost always offer something very interesting to American railroad men, and of a kind which we do not often get in any shape here, and less now, we think, than formerly. In presenting a report to the shareholders at the half-yearly meetings the English Chairman is expected to explain it, to give the reasons for larger or smaller earnings, higher or lower expenses, explain the results of new policies introduced and for which, perhaps, authority was asked at previous meetings. This may be done in a printed document attached to the statistics of the report; but there is the advantage that when the presiding officer makes a speech at a meeting he can be questioned by the shareholders. The explanatory report, as we may call it, is sometimes a very valuable document in this country, especially when the President in it expresses himself freely on the current railroad history of the year. If we had disquisitions from Mr. Vanderbilt, Mr. Jewett, Mr. Garrett, Mr. Roberts, Mr. Devereux, Mr. Bliss, Mr. Newell, and the other executives of the lines most interested in trunk-line traffic concerning the course of business last year, for instance, they should, in the aggregate, help us much to appreciate the situation. But not only do the executives of some of the lines make no public comments on the course of the business which they manage, but most of those who do, especially of late years, restrict their expressions of opinion and accounts of events to a bare and colorless outline, from which it is not easy to learn what their opinions actually are. Doubtless this is largely due to diplomatic considerations. In the case of the late railroad war, for instance, doubtless all the executives felt very strongly, and in private spoke very emphatically and indignantly. But they knew that they must sooner or later conduct negotiations with those whom they most condemned, and that to tell plainly what they thought would certainly embarrass them in their negotiations, and tend to defeat the object they had most at heart. Yet if brought face to face with their stockholders, they could not well avoid expressing their opinions and defending their own course.

Doubtless if this were the general practice, they would soon learn how to express themselves frankly and diplomatically at once, and if each knew that all the others would have to do the same, he would have less hesitation in unbosoming himself. The standard defense of concealment of the policy of a management from the proprietors of the property managed is, that, from the nature of a corporation, if the policy is made known to the shareholders it is published to the world, so that rivals learn our business secrets. But if these rivals also have to publish their policy, then all are on a level again.

THE OPENING OF THE ERIE CANAL was announced for the 11th inst., last Tuesday, but the first shipments reported were on the 12th, amounting to but 69,000 bushels, or about nine boat-loads. The rates reported are 4½ cents for corn and 5 cents for wheat to New York, which, with the current lake rates, will make it cost about 7½ cents a bushel to send corn from Chicago to New York. Last year there were no shipments worth counting until May 20, and then the rates were 6 cents a bushel for wheat, 5½ for corn and 3¾ for oats, but within a week they fell to 5 cents for wheat and 4¼ for corn. The rail rates from Buffalo to New York are reported as 9 cents a bushel for wheat, 8½ for corn and 5 for oats, which is considerably more than the proportion of the 25-cent rate from Chicago to New York, that being only 7 cents from Buffalo to New York.

OCEAN RATES for some weeks have been extraordinarily low, ⅛d. to ¼d. per bushel having been commonly accepted from New York, and, it is reported, payments having been made by the vessels in a few cases for grain for ballast at Boston. The condition of traffic is such as almost to insure very low export rates for some months to come The imports are large and the immigration enormous, and this brings great numbers of vessels to the Eastern ports, but the exports are unusually light, so that these vessels cannot get full return cargoes—the currents being the reverse of what is usual.

PIPE LINES have superseded the railroads for shipments from the producing districts to such an extent that of 1,787,909 barrels shipped from these districts last February only 521,317 barrels, or 29 per cent., went by rail, and of this 101,644 barrels were refined oil, which cannot be forwarded by the pipe lines. Of the crude oil only 25 per cent. left the producing districts by rail, 35½ per cent. went by pipe lines to the refining centres at Cleveland, Buffalo and Pittsburgh, and nearly 40 per cent. by the Seaboard Pipe Line and the Tide Water Pipe Line.

LAKE RATES have been very steady since navigation opened April 1, a few shipments having been made at 2½ cents a bushel to Buffalo, but most at 2¼ cents. Shipments, however, have been light.

General Railroad News.

MEETINGS AND ANNOUNCEMENTS.

Meetings.

Meetings will be held as follows:

Lake Shore & Michigan Southern, annual meeting, at the office in Cleveland, O., May 3, at 10 a. m.

Michigan Central, annual meeting at the office in Detroit, Mich., May 4, at 10 a. m.

Delaware & Hudson Canal Co., annual meeting, at the office of the company in New York, May 9, at noon.

Wheeling & Lake Erie, special meeting, in Norwalk, O., May 4, to vote on an agreement with the Cleveland & Marietta Company.

Carolina Central, annual meeting, at the office in Wilmington, N. C., April 27.

Chicago, Burlington & Quincy, annual meeting, at the office in Chicago, April 26.

Missouri, Kansas & Texas, annual meeting, at the office in Parsons, Kan., May 17, at noon.

Railroad Conventions.

The *Association of American Railway Superintendents* will hold its third meeting on Wednesday, April 19, beginning at 10 a. m., at the Railway Club Rooms, No. 46 Bond street, New York.

The *Railway Car Accountants' Association* will hold its annual meeting in Boston, beginning on Tuesday, May 23, at 10 a. m. The Hotel Vendome has been selected as headquarters for members.

The *Southern Time Convention* will meet at the Railway Club Rooms, No. 46 Bond street, New York, Wednesday, April 19, at 11 a. m.

The *General Time Convention*, which was to have been held April 12, has been postponed by general consent, and will be held in Cleveland, O., on call of the Chairman.

Dividends.

Dividends have been declared as follows:

Delaware, Lackawanna & Western, 2 per cent., quarterly, payable April 20. Transfer books closed April 5.

West Jersey, 3 per cent., payable April 17, in scrip convertible into new stock. This dividend is made to represent earnings used for second track and other improvements.

Oregon Railway & Navigation Co., 2 per cent., quarterly, payable May 1. Transfer books close April 20.

East-Bound Pool Meeting.

There was a conference April 12 at Commissioner Fink's office between traffic officers of the trunk lines and representatives of numerous Western roads. The object was to prepare for a division of both freight and live-stock traffic from the principal Western cities. The Grand Trunk road was represented by L. J. Seargeant, Traffic Manager, and John Porteous, General Freight Agent. The Western roads represented were the Pennsylvania Company, the Indiana, Bloomington & Western, the Vandalia line, the Indianapolis & St. Louis, the Wabash, St. Louis & Pacific, the Cleveland, Columbus, Cincinnati & Indianapolis, the Marietta & Cincinnati, the Lake Shore & Michigan Southern, the Michigan Central, the New York, Pennsylvania & Ohio, the Canada Southern, the Great Western, of Canada, and the Chicago & Grand Trunk. The discussion Wednesday was on the means of carrying out the live-stock contract, and especially the allowance of the rebate for shipping in accordance with the directions of the co-operating roads. One proposal is that Mr. Fink shall issue rebate orders on the company carrying the stock, when satisfied that it was consigned by the proper route, which orders the shippers will get cashed at the company's treasury; another is that Mr. Fink be provided with a fund by the several lines interested, and pay the rebate himself immediately after ascertaining that the shipment is entitled to it. The question was not decided Wednesday, and there was an adjournment till Thursday, and a prospect that the meeting would last over Friday.

It is not probable that the roads will succeed in agreeing on the terms of the division of the traffic from some of the western cities, as Chicago and Peoria; but they must first negotiate concerning a division before the question can come to arbitration, and at St. Louis and perhaps a few other places a division can be agreed upon without resort to arbitration.

American Society of Civil Engineers.

The Society met at its house in Twenty-third street, New York, on Wednesday evening, April 5, 1882, President Ashbel Welch in the chair. The following candidates were elected members: Lieut. Wm. H. Bixby, Corps of Engineers, U. S. A.; F. A. Calkins, New York; J. M. Knap, New York; Chas. P. Perkins, Williamsport, Pa.; B. Rhodes, Niagara Falls; Robt. Surtees, Ottawa, Can., and as associate member, John Lockwood, New York. Arrangements were made for the annual convention of the Society, to be held in Washington May 16 next and succeeding days. The introduction of a bill in Congress was announced for establishing a Commission composed of persons skilled in the investigation, production and use of metallic substances, and other structural materials. The great importance of the speedy passage of this bill to the future safe and economical construction of bridges, roofs, floors, iron or steel ships, ordnance and armor, and all structures in which metal is extensively used, was forcibly presented.

A paper by A. P. Boller, M. Am. Soc. C. E., on the "Mode of Underpinning adopted for the Croton Lake bridge, New York City & Northern Railroad, during the repairs to the masonry piers," was read by the Secretary. This bridge was a single track wrought-iron deck structure in three spans of 160 ft. each, with skeleton wrought-iron piers or towers springing from blocks of masonry. The water was 30 ft. in depth. These towers had four legs, and thus concentrated all the weight upon the four corners of the masonry. This masonry had been built ten years before by another company. It rested below low water upon timber cribs. It was tested by loading with stone before building the iron bridges without showing improper settlement. The erection of the bridge towers, and the use of the bridge, soon developed the fact that the masonry could not stand the weight upon its corners, and it became necessary to rebuild it. The towers, being continuous frame works, with spreading legs, make it practicable to build inside of them a subsidiary wooden tower, with perpendicular legs. This was done, the bottom wood sills being placed so as to admit the introduction of eight 20-ton hydraulic jacks. Two minutes work with the jacks lifted the towers and adjoining spans bodily. They were then supported upon 15 in. rolled beams, 200 lbs. to the yard, placed in pairs, resting on the inner side upon timbers, distributing the weight upon the masonry, and on the outer side on timber supports built up from the original crib work. The defective masonry was then taken out and rebuilt. One half hour sufficed to raise the structure, throw the weight upon the cross-girders, and resume traffic.

No train was delayed on its schedule time.

The author criticizes severely the character of the old masonry.

The subject of the overflow of the Mississippi was also discussed.

American Society of Mechanical Engineers.

The programme for the first regular meeting of 1882, at Philadelphia, beginning Wednesday, April 19, announces that the headquarters and reception rooms will be at the rooms of the Engineers' Club of Philadelphia, No. 1518 Chestnut street. The opening session will be held in the lecture room of the Franklin Institute, beginning at 10 a. m. At 2.30 p. m. the same day will be held the "Holley memorial session," at which a committee will submit resolutions and Mr. James C. Bayles will pronounce a eulogium. In the evening a reception in honor of the Society will be held by citizens of Philadelphia at the Academy of Fine Arts. Members are asked to meet at headquarters at 8 p. m. in order to proceed in a body to the reception.

Thursday will be devoted to an excursion on the Delaware River and visits to various places of professional interest. Those to which members are invited include gas works, the Navy Yard, grain elevators, the shipyards of Roach and of Cramp, the United States mint, the Baldwin Locomotive Works, the water works, etc. In the evening will be held the annual subscription dinner.

Friday, there will be professional papers and discussions at the morning session, and in the afternoon Prof. Thomas Egleston, Chairman of the Committee on Tests of Iron, Steel and Other Materials, will report on the efforts made to secure a United States Commission to make such tests. In the evening, there will be further papers and discussions and, probably, adjournment.

Some of the papers announced for the meeting are as follows: "Results of a Test of Upright Boilers and Pumping Engine," J. S. Coon; "The Chronograph for Engineering Purposes with the Hipp Escapement," W. R. Eckart; "On the Several Efficiencies of the Steam Engine," Robert H. Thurston; "The Thermodynamics of Certain Worthington and Other Compound Pumping Engines," S. W. Robinson; "Determination of Heating Surface of Ventilating Flues," Wm. P. Trowbridge; "Note on the Economy of the Windmill as a Prime Mover,' Alfred R. Wolff; "Screw Propulsion," John B. Root; "A Standard Gauge System," George W. Bond; "Description of the Edison Steam Dynamos in the New York Central Station," Thomas A. Edison, Ph. D., and Charles T. Porter.

The Committee on Transportation has made arrangements by which members will be carried to and from the meeting by the various lines of the Pennsylvania Railroad and controlled companies east of Pittsburgh at two cents per mile, and also on the Reading, and for reduced rates on the Lehigh Valley. The society is invited to visit the Trenton Iron Works, and members may do so on their way, but there will not be time to make a special excursion thither during the session.

ELECTIONS AND APPOINTMENTS.

Allegheny Valley.—At the annual meeting in Pittsburgh, April 11, the following directors were chosen: B. F. Jones, John Scott, D. A. Stewart, Pittsburgh; A. J. Cassatt, J. N. DuBarry, John P. Green, H. M. Phillips, George B. Roberts, Edmund Smith, Philadelphia.

Bald Eagle Valley.—At the annual meeting in Philadelphia, April 11, the following were chosen: President, L. A. Mackey; directors, E. Blanchard, A. G. Curtin, J. N. DuBarry, James Duffy, James Gamble, John P. Green, John Irwin, Jr., Strickland Kneass, C. A. Mayer, Wistar Morris, George B. Roberts, Edmund Smith. The road is leased to the Pennsylvania Railroad Company.

Baltimore & Ohio & Chicago.—At the annual meeting in Chicago, April 6, the following directors were chosen: Bradford Dunham, Daniel A. Jones, John Thomas. The board elected Bradford Dunham President; J. H. Sutor, Secretary and Treasurer; J. L. Randolph, Chief Engineer. The road is owned by the Baltimore & Ohio Company.

Cape Fear & Yadkin Valley.—At the annual meeting in Fayetteville, N. C., the following directors were chosen: E. J. Hilly, A. A. McKethan, John D. Williams, W. A Guthrie. The state directors are: Julius A Gray, D. R. Harrell, Edmund Jones, L. C. Jones, W. A. Lash, C. P. Mendenhall, W. A. Moore. The board re-elected Julius A. Gray President.

Chicago, Milwaukee & St. Paul.—General Manager S. S. Merrill has issued the following circular: "Mr. John Bailie is appointed Superintendent of the Car Department of this company, with headquarters at Milwaukee, and will have supervision of the six districts into which the car department is divided. The following persons will have charge of the respective districts, with titles as follows: W. E. Kittredge, Master Car Builder, District No. 1, North Milwaukee; John Pennycook, Foreman of car shops, District No. 2, West Milwaukee; E. A. Eddy, Foreman of car shops, District No. 3, Racine; W. O. Davis, Foreman of car shops, District No. 4, Chicago; J. G. Thayer, Foreman of car shops, District No. 5, Dubuque; E. A. Westcott, Foreman of car shops, District No. 6, Minneapolis."

Chippewa Valley & Superior.—Mr. George B. Shaw, of Eau Claire, Wis., has been chosen a director in place of Daniel Shaw, deceased.

Cincinnati, Richmond & Ft. Wayne.—At the annual meeting recently the following directors were chosen: W. O. Hughart, Wm. R. Shelby, Grand Rapids, Mich: Pliny Hoagland, Ft. Wayne, Ind.; A. Stone, Winchester, Ind.; David Stanbacker, Decatur, Ind.; Charles C. Binkley, John H. Moorman, Wm. Parry, Richmond, Ind.; F. H. Short, Cincinnati; J. N. McCullough, Wm. Thaw, Pittsburgh. The road is leased to the Grand Rapids & Indiana Company.

Cincinnati, Wabash & Michigan.—At the annual meeting in Wabash, Ind., April 12, the following directors were chosen: Norman Beckley, C. E. Cowgill, J. H. Defrees, H. B. Payne, Amasa Stone, J. H. Wade. The board elected J. H. Wade President; J. H. Defrees, Vice-President; Norman Beckley, General Manager; W. S. Jones, Secretary and Treasurer; O. W. Lamport, Superintendent.

Danville, Indiana & Michigan.—The directors of this new company are: H. W. Beckwith, Joseph G. English, Wm. E. Livengood, Isaac Porter, John H. White. Office in Danville, Ill.

Denver, Utah & Pacific.—At a meeting held in New York, April 11, the following directors were chosen: E. F. Hallock, H. A. W. Tabor, H. R. Walcott, Denver, Col.; David S. Babcock, Joseph P. Hale, Paul Lichtenstein, George M. Miller, Edward Morgan, William A. Street, New York. The board elected George M. Miller President.

East River.—The officers of this company are: President, F. J. Kimball; directors, Wm. G. Macdowell, Henry Fink Thomas Graham, Clarence H. Clark; Secretary, G. R. W Armes; Treasurer, Wm. G. Macdowell; Chief Engineer, Thomas Graham, Jr. The office of the Chief Engineer is at Pearisburg, Giles County, Va.; the other offices are in Philadelphia.

Grand Trunk.—At the half-yearly meeting in London, March 30, Sir Henry Tyler, Lord Claude John Hamilton and Wm Unwin Heygate, the three directors whose terms then expired, were unanimously re-elected.

Kentucky Railroad Commission.—Governor Blackburn, of Kentucky, has appointed the following Railroad Commissioners: F. L. McChesney, Reginald H. Thompson, Lynn Boyd.

Long Island.—At the annual meeting in Long Island City, N. Y., April 11, the following directors were chosen: Demas Barnes, Austin Corbin, D. C. Corbin, James G. K. Duer, Henry Graves, B. S. Henning, H. W. Maxwell, J. R. Maxwell, F. W. Peck, Alfred Sully, J. P. Townsend, Edward Tuck, F. B. Wallace.

Long Island City & Flushing.—At the annual meeting held April 11, the following directors were chosen: Austin Corbin, F. W. Dunton, Henry Graves, B. S. Henning, E. B. Hinsdale, Charles Knoblauch, J. R. Maxwell, C. S. Moulton, Alfred Sully, E. E. Sprague, Carl Victor, T. F. Ward. The road is leased to the Long Island Company.

Milwaukee, Lake Shore & Western.—Mr. A. L. Cary, of Milwaukee, Wis., has been appointed General Solicitor.

New England General Passenger and Ticket Agents' Association.—At the annual meeting in Boston, April 5, the following officers were chosen: President, B. F. Kendrick, Boston, Lowell & Concord; Vice-President, A. C. Kendall, New York & New England; Secretary, C. A. Waite, Worcester & Nashua; Executive Committee, J. F. Leavitt, European & North American, W. F. Smith, Central Vermont, and E. Gallup, Boston & Albany.

New York, Chicago & St. Louis.—It is announced that Mr. D. W. Caldwell, late General Manager of the Pennsylvania Company, is to be Vice-President of this company, with the chief executive power over the road, but not with the financial management.

New York & Long Branch.—Mr. Thomas D. Maurer is appointed Auditor, with office at No. 119 Liberty street, New York.

Ohio & Baltimore Short Line.—At the annual meeting in Washington, Pa., April 6, the following were chosen: President, J. B. Washington; directors, Henry M. Dougan, Wm. Keyser, Wm. C. King, W. W. Smith, S. Spencer, Wm. Workman; Secretary, W. W. Smith; Treasurer, W. H. Ijams; Chief Engineer, J. L. Randolph. The company is controlled by the Baltimore & Ohio.

Pennsylvania.—Mr. Leslie P. Farmer, who was formerly General Passenger Agent, and resigned about a year ago on account of ill health, has been appointed General Agent for New England in place of Cyrus P. Haldeman, resigned. His office is in Boston.

Mr. Robert M. Pettit, who succeeds Mr. James McCrea as Superintendent of the New York Division, has been for some time Assistant to the Chief Engineer.

Pennsylvania Company.—Mr. Wm. A. Baldwin, having resigned his position as Manager of the Pittsburgh, Cincinnati & St. Louis, still continues Manager of this company's lines, including all the lines west of Pittsburgh except those included in the Pittsburgh, Cincinnati & St. Louis system.

Pittsburgh, Cincinnati & St. Louis.—The following circular has been issued by President Roberts:

"Mr. W. A. Baldwin having resigned his position as Manager of the lines of this company, to take effect April 10th instant, Mr. James McCrea has been appointed to fill the vacancy. His office will be at Columbus, Ohio."

The new board has elected George B. Roberts President; J. N. McCullough, First Vice-President; Wm. Thaw, Second Vice-President; Thomas D. Messler, Third Vice-President and Comptroller; S. B. Liggett, Secretary; S. W. White, Assistant Secretary; M. C. Spencer, Treasurer.

Reading & Chesapeake.—At the annual meeting in Lancaster, Pa., April 4, the following directors were chosen: D. Bair, Henry Baumgardner, John H. Baumgardner, S. T. Davis, R. J. Evans, S. H. Price, C. J. Rhoads, J. W. F. Swift. The board elected Henry Baumgardner President; S. H. Price, Secretary; D. B. Halstead (of New York), Treasurer.

Red River & Lake of the Woods.—The directors of this new company are: W. J. Ives, McLeod County, Minn.; J. B. Copeland, G. F. Copeland, Frank Ives, Arthur Yoernault, Crookston, Minn.

St. Louis, Ft. Scott & Wichita.—At the annual meeting in Ft. Scott, Kan., recently, the following directors were chosen: L. M. Bates, D. S. McKay, D. C. Moran, Moses Neal, Albert Popkess, J. F. Robing, I. Stoddard, W. H. Stout, F. Tiernan. The board elected F. Tiernan President; W. H. Stout, Vice-President, Q. Campbell, Secretary.

St. Louis, Iron Mountain & Southern.—Mr. Robert M. Richardson is appointed Master Mechanic of the Arkansas Division in place of Mr. L. Finlay, resigned.

St. Louis, Keokuk & Northwestern.—Mr. Wm. H. Bartlett has been appointed Master Mechanic in place of Wm. Foley, resigned.

St. Louis & San Francisco.—The board has elected Edward F. Winslow President; Charles W. Rogers, First Vice-President and General Manager; James D. Fish, Second Vice-President; T. W. Lillie, Secretary and Treasurer; George Butler, Assistant Treasurer. The only new officer is Mr. Lillie; he succeeds Mr. Calvin Littlefield, who declined re-election.

Sinaloa & Durango.—At the annual meeting in Boston recently the following directors were chosen: J. Henry Brooks, Thomas N. Hart, William H. Hill, Jr., Spencer W. Richardson, John Y. Stetson, Robert R. Symon.

Tennessee Coal, Iron & Railroad Co.—At the annual meeting in Nashville, Tenn., April 3, the following directors were chosen: J. C. Warner, N. Baxter, Jr., J. H. Inman, G. Washington, C. C. Baldwin, E. P. Alexander, I. W. Evans, J. D. Porter, T. O'Conner, G. M. Fogg, A. S. Colyar, B. R. Smith, A. M. Shook, J. Bowron. The board elected James C. Warner President; Nat. Baxter, Jr., Vice-President; James Bowron, Secretary and Treasurer; A. M. Shook, General Manager.

Western Trunk Lines Association.—At the annual meeting in Chicago last week the old officers were re-elected as follows: Commissioner, W. H. Dixon; Executive Committee, A. V. H. Carpenter, W. H. Stennett, H. C. Townsend.

Wisconsin, Iowa & Nebraska.—The officers of this new company are: President, George Glyck, Marshalltown,

Ia.; Vice-President, Samuel Morrill, Des Moines, Ia.; Secretary, J. M. Parker, Marshalltown, Ia.; Treasurer, Hoyt Sherman, Des Moines, Ia.

PERSONAL.

—Mr. Wm. Foley, for several years past Master Mechanic of the St. Louis, Keokuk & Northwestern road, has resigned his position.

—Mr. L. Finlay, for a long time Master Mechanic of the Arkansas Division of the St. Louis, Iron Mountain & Southern road, has resigned his position.

—Gen. Wm. Burt, President of the Boston, Hoosac Tunnel & Western Company, had a stroke of paralysis at Saratoga, N. Y., April 6, and is now in a very precarious condition.

—It is reported that Col. Orland Smith, now General Manager of the Columbus, Hocking Valley & Toledo road, is to be made Vice-President and General Manager of the Ohio Central.

—Mr. T. B. Gault, for some time past General Agent of the Wabash, St. Louis & Pacific road at Council Bluffs and Omaha, has resigned that office, and accepted the position of General Contracting Agent for the Western Fence Company, of Chicago.

—Mr. R. J. Gross recently resigned his position as Chief Train Dispatcher of the Western Division of the New York, Lake Erie & Western road, to accept a position in the Brooks Locomotive Works. The conductors on the division presented Mr. Gross with a very handsome gold watch chain as a mark of their esteem.

—Mr. John F. Slater, a wealthy manufacturer, of Norwich, Conn., and also a director and large stockholder in the Chicago & Alton Company, has given $1,000,000 to a board of trustees who are to apply the income from this trust fund to aiding in the education of colored people in the South.

—Col. B. W. Spencer, Treasurer of the New York, Lake Erie & Western Company was somewhat injured by jumping from a passenger train in the yard at Jersey City on the morning of April 10. A collision was expected, and a number of men in their haste to get off the car jumped upon Col. Spencer, throwing him down and bruising him considerably.

—Hon. Thomas Allen died at the Arlington Hotel in Washington, April 8, aged 69 years, after a long and painful illness. He was born in Pittsfield, Mass., graduated from Union College at Schenectady, and was admitted to the bar in New York city in 1825. He did not remain there long, but went to Washington, where he established a successful newspaper, and was for a short time Public Printer. In 1842 he went to St. Louis, began to practice law and soon afterwards married. He was active in Missouri politics and served several terms in the Legislature, where he was largely instrumental in securing the beginning of the Missouri Pacific, the Southern Pacific and the Iron Mountain roads by the state. Very successful in business, he abandoned the law and started a banking house, which made him in course of time a rich man. Soon after the war he bought the Iron Mountain road, then almost a wreck, from the state, organized a new company and extended his road, first to Belmont and afterwards across Arkansas to Texarkana, and a connection with the Texas system. He was the President and active head of the St. Louis, Iron Mountain & Southern Company until 1881, when he sold out most of his interest to Jay Gould, preferring thenceforth to devote himself to his duties in Congress, to which he had been chosen in 1880 from one of the St. Louis districts. Ill-health prevented him from taking any part in the House, however. A trip to Europe last year was of no benefit, and his only appearance in Congress was as the opening of the session. A day or two afterwards he was unable to leave his bed. Mr. Allen will be buried at Pittsfield, where he built himself a summer house years ago, and where he passed nearly half his time. Mr. Allen was a man of great energy and activity, and also of great tenacity of purpose, rarely turning aside from an object which he had in view. He was also a man of some literary taste and considerable public spirit, and gave liberally for public and educational purposes.

TRAFFIC AND EARNINGS.

Grain Movement.

For the week ending April 1, receipts and shipments of grain of all kinds at the eight reporting Northwestern markets, and receipts at the seven Atlantic ports, have been, in bushels, for the past six years:

Year.	Northwestern receipts.	Northwestern shipments.	Atlantic receipts
1877	1,711,939	1,574,082	1,420,795
1878	4,022,086	3,836,491	4,609,220
1879	2,754,786	2,833,368	4,901 466
1880	4,426,124	5,957,544	6,746,935
1881	4,002,244	2,538,403	4,900,231
1882	2,341,528	1,681,742	1,188,941

The receipts of the Northwestern markets are 41 per cent. less than in the corresponding week of last year and smaller than in any other year since 1877. They were, however, the largest for six weeks this year. The shipments of these markets were 34 per cent. less than last year and the smallest since 1877, but they were a little larger than the week before and larger than in three other weeks of this year. Of the shipments this year 136,760 bushels (8.1 per cent. of the whole) went down the Mississippi. The Atlantic receipts of the week this year are smaller than in any corresponding week of which we have any record (since 1873), and are not one-fourth what they were last year, and little more than a sixth of what they were in 1880. But in one week this year there were smaller receipts.

Of the Northwestern receipts Chicago had 25.2 per cent., St. Louis 24.3, Peoria 21.7, Milwaukee 12.7, Toledo 7.4, Detroit 5.2, Cleveland 2.8 and Duluth 0.7 per cent. Compared with the previous week there is a large falling off at Chicago and gains at the other places, which are largest at St. Louis.

Of the Atlantic receipts New York had 30.6 per cent., Baltimore 20.6, Boston 18.8, Philadelphia 13.7, New Orleans 9, Portland 6, and Montreal 1.3 per cent. New York's receipts are much the smallest that we have ever recorded, and 95,000 bushels less than the week before; Philadelphia's are the largest for six weeks, and Baltimore's the largest of the year and 110,000 bushels more than the week before; but their receipts are still very small.

The grain exports from Atlantic ports for the week ending April 1 were 1,015,105 bushels, of which 66.6 per cent. went from New York, 9.3 from Boston, 7.4 from Philadelphia, 6.6 from Portland, 6.5 from Baltimore and 3.6 per cent. from New Orleans. For the week ending April 5 the exports were 1,181,013 bushels of grain and 76,338 barrels of flour this year, against 4,422,442 bushels of grain and 120,665 barrels of flour in the corresponding week of last year.

For the week ending April 8 receipts and shipments at Chicago and Milwaukee were:

	Receipts. 1882.	Receipts. 1881.	Shipments. 1882.	Shipments. 1881.
Chicago	544,217	1,073,299	1,407,340	1,111,509
Milwaukee	185,076	272,607	78,618	137,947
Both	729,293	1,345,906	1,485,958	1,249,456

The receipts were thus 616,613 bushels (46 per cent.) *less* and the shipments 236,502 bushels (19 per cent.) *more* than last year. The opening of navigation accounts for the increase of shipments. Lake shipments were not made till May last year.

For this week, ending April 8, receipts of four Eastern ports were:

Bushels.	New York.	Boston.	Phila.	Balt.	Total.
1882	483,781	108,376	92,684	200,029	884,870
1881	1,573,548	408,625	335,800	857,456	3,175,429
P. c. of total:					
1882	54.7	12.2	10.5	22.6	100.0
1881	49.6	12.8	10.6	27.0	100.0

The total receipts are 72 per cent. less than last year. There is less change in the percentages than for a long time previously.

San Francisco wheat shipments for the nine months of the California crop year, from July 1 to March 31, were as follows, flour in barrels and wheat in bushels, flour being reduced to wheat in the totals:

	1881-82.	1880-81.	Increase.	P.c.
Flour	604,516	481,340	123,176	25.8
Wheat	29,319,473	17,611,305	11,708,168	66.5
Total, bushels	32,342,053	20,018,005	12,324,048	61.5

This year about 75 per cent. of the wheat went to Great Britain, about 12 per cent. to France, and 8 per cent. to Belgium. About 50 per cent. of the flour went to Great Britain and 30 per cent. to China.

Exports of California barley by sea for the nine months ending March 31 were 83,624 centals, a decrease from last year of 393,910 centals, or 82.5 per cent. Overland rail shipments for the eight months ending Feb. 28 were 90,500 centals.

Railroad Earnings.

Earnings for various periods are reported as follows:

Three months ending March 31:

	1882.	1881.	Inc. or Dec.	P. c.
Bur.,Ced.Rap.& No	$702,560	$440,810	I. $261,750	59.4
Central Pacific	5,528,469	4,766,762	I. 761,707	16.0
Chi. & Alton	1,697,763	1,503,353	I. 194,440	12.9
Chi. & Eastern Ill.	412,498	364,212	I. 48,286	13.3
Chi., Mil. & St. P.	4,373,000	2,590,553	I. 1,782,447	68.8
Chi. & Northwest.	3,788,847	2,382,667	I. 1,406,180	59.0
C., Ind., St. L. & Chi	613,544	544,974	I. 68,570	12.6
Grand Trunk	2,536,684	2,601,162	D. 64,478	2.5
Great Western	1,185,385	1,275,783	D. 90,398	7.1
G. B., Win. & St. P.	87,649	69,884	I. 17,765	25.4
Ill. Cent., Ill. lines	1,653,213	1,405,095	I. 248,118	17.7
Iowa lines	459,718	308,474	I. 151,244	49.1
Ind., Bloom & West	577,814	543,061	I. 34,753	6.4
Lake Erie & West	320,056	288,590	I. 31,466	10.8
Mo. Pacific lines:				
Central Branch	209,158	192,793	I. 16,365	8.5
Int. & Gt. No.	639,789	616,036	I. 23,753	3.8
Mo., Kan & Tex.	1,266,885	1,101,417	I. 165,468	15.0
Mo. Pacific	1,577,838	1,298,076	I. 279,962	21.6
St. L., I. M. & So.	1,602,505	1,835,748	D. 233,243	12.7
Tex. & Pacific	899,340	861,885	I. 37,455	4.3
N. Y. & N. England	686,088	575,380	I. 110,708	19.3
Ohio Central	206,018	131,573	I. 74,445	56.4
Or. Ry. & Nav. Co.	1,084,100	608,308	I. 475,792	78.4
Peo., Dec. & Ev.	188,938	118,785	I. 70,153	58.9
St. L., A. & T. H.,				
Main Line	303,870	338,975	D. 35,105	10.4
Belleville Line	193,481	203,899	D. 10,418	5.1
Scioto Valley	108,069	72,493	I. 35,576	49.0
Wab., St. L. & P.	3,680,508	2,752,131	I. 928,377	33.7
Month of February:				
Grand Trunk	£153,978	£158,295	D. £4,317	2.7
Net earnings	27,427	37,329	D. 9,902	26.8
Great Western	64,295	67,130	D. 2,835	4 2
Net earnings	5,343	13,911	D. 8,568	61.2
Month of March:				
Bur.,Ced.Rap.& No	$224,107	$148,551	I. $75,556	50.7
Central Iowa	86,696	48,276	I. 38,420	80.0
Central Pacific	1,987,000	1,709,637	I 277,363	16.2
Chi. & Alton	581,483	529,915	I. 51,569	9.7
Chi. & Eastern Ill.	138,286	121,637	I. 16,649	13.7
Chi. & Gd. Trunk	184,933	115,691	I. 69,642	60.1
Chi., Mil. & St. P.	1,561,000	916,989	I. 644 011	70.2
Chi. & Northwest.	1,696,566	1,178,795	I. 517,771	44.0
Cin., Ind., St. L. & C.	208,066	191,005	I. 17,061	8.9
Ev. & Terre Haute	64,828	57,927	I. 6,901	11.9
Gn. B., W. & St. P.	35,566	26,590	I. 8,976	33.3
Ill. Cen., Ill. lines	537,398	449,963	I. 87,375	19.4
Iowa lines	158,033	107,826	I. 50,207	46.5
Ind., Bloom. & W.	206,235	192 085	I. 14,150	7.4
Lake Erie & West.	92,589	94,926	D. 2,337	2.5
Mo. Pacific lines:				
Central Branch	79,651	79,204	I. 447	0.5
Int. & Gt. No.	240,459	224,069	I. 16,390	7.3
Mo., Kan. & Tex.	472,048	433,343	I. 38,707	9.0
Mo. Pacific	556,120	513,982	I. 42,138	8.2
St. L., I. M. & So.	585,008	704,002	D. 118,994	16.9
Tex. & Pacific	332,911	319,928	I. 12,983	4.1
N. Y. & N. England	256,674	212,019	I. 44,655	21.0
Ohio Central	63,557	49,647	I. 13,910	27.8
Peoria, Dec. & Ev.	64,364	39,644	I. 24,720	61.9
St. L. & T. H., M. L.	105,124	132,572	D. 27,448	20.6
Belleville Line	73,621	68,565	I. 5,056	7.3
Scioto Valley	39,869	28,816	I. 11,053	38.1
Wab., St. L. & Pac.	1,315,775	1,121,592	I. 194,183	17.3
First week in April:				
Chi., Mil. & St. P.	$374,000	$302,904	I. $71,096	23.5
Denver & R. G.	125,711	104,668	I. 21,043	20.1
Louisv. & Nashv.	223,947	187,800	I. 36,147	19.2
Wab., St. L. & P.	320,408	224,044	I. 96,364	43.0

For a number of the figures given above we are indebted to the *Commercial and Financial Chronicle.*

Coal Movement.

Anthracite tonnages for the three months ending April 1 are reported as follows, the tonnage in each case being only that originating on the line to which it is credited:

	1882.	1881.	Inc. or Dec.	P. c.
Phila. & Reading	1,292,377	1,326,114	D. 33,737	2.5
Northern Central, Shamokin Div., and Summit Br. R. R.	235,890	234,547	I. 1,343	0.6
Sunbury, Hazleton & Wilkesbarre	11,273	1,176	I. 10,097	851.2
Central, of N. J., Lehigh Div.	907,097	999,495	D. 92,398	9.3
Lehigh Valley	1,176,359	1,221,782	D. 45,423	3.7
Pennsylvania & N. Y.	41,973	13,047	I. 28,926	222.5
Del., Lacka. & We-tern.	914,927	985,054	D. 70,127	7.1
Del. & Hudson Canal Co.	741,989	870,745	D. 128,756	14.8
Pennsylvania Coal Co.	216,408	251,548	D. 35,140	13.9
State Line & Sullivan	11,784	15,320	D. 3,536	23.1
Total anthracite	5,550,077	5,918,828	D. 368,751	6.2

The tonnage of anthracite for the corresponding period for six years has been:

1882	5,550,077	1879	5,132,261
1881	5,918,828	1878	3,040,249
1880	4,606,974	1877	3,897,455

Anthracite trade continues dull, although helped a little by local demands on account of the late spring and continued cold weather.

The tonnage of anthracite coal passing over the Belvidere Division, Pennsylvania Railroad, for the three months was as follows:

	1882.	1881.	Inc. or Dec.	P. c.
S. Amboy for shipment	173,856	150,532	I. 23,324	15.4
Coal Port for shipment		1,075	D. 1,075	100.0
Local points on N. J. lines	170,430	198,190	D.27,760	14.0
Co.'s use on N. J. lines	33,022	27,767	I. 5,255	18.8
Total	377,308	377,564	D. 256	0.1

Of the total this year, 289,786 tons were from the Lehigh Region, and 87,522 tons from the Wyoming Region.

Actual tonnage passing over the Pennsylvania & New York road for the four months of its fiscal year from Dec. 1 to March 31, was:

	1882.	1881.	Inc. or Dec.	P. c.
Anthracite	338,594	266,242	I. 72,352	27.2
Bituminous	137.885	157,163	D. 19,278	12.2
Total	476,479	423,405	I. 53,074	12.5

Semi-bituminous tonnages for the three months were as follows:

	1882.	1881.	Inc. or Dec.	P. c.
Cumberland, all lines	450.063	392,521	I. 57,482	14.6
Huntingdon & Broad Top	60,740	63,356	D. 2,616	4.3
East Broad Top	26,691	18,863	I. 7,828	41.2
Tyrone & Clearfield	664,482	519,706	I. 144,776	27.8
Bellefonte & Snow Shoe	49,889	18,615	I. 21,274	114.4
Total semi-bituminous	1,251,805	1,013,061	I. 238,744	23.6

Clearfield shipments this year have been very large and will increase somewhat for a time. The markets are almost bare of Cumberland, and none is being mined now, the miners continuing to hold out against the proposed reduction in wages.

Actual tonnage passing over the Huntingdon & Broad Top road for the three months was:

	1882.	1881.	Inc. or Dec.	P. c.
Broad Top coal	60,740	63,356	D. 2,616	4.3
Cumberland coal	85,330	54,931	I. 30,399	55 3
Total	146,070	118,287	I. 27.783	23.4

Shipments of Cumberland coal out of the region for the three months were as follows:

	1882.	1881.	Inc. or Dec.	P. c.
Balt. & Ohio R. R.	367.106	316,963	I. 50,143	15.8
Bedford Div., Pa. R. R.	74,842	46,687	I. 28,155	60.3
Ches. & Ohio Canal	4,222	7,394	D. 3.172	42.9
Total	446,170	371,044	I. 75,126	20 3

Of the total tonnage from the mines the George's Creek & Cumberland road this year has carried 48,395 tons. It was not in operation last year at this time.

Bituminous tonnages reported for the three months are as follows:

	1882.	1881.	Inc. or Dec.	P.c.
Barclay R. R. & Coal Co.	101,937	119,866	D. 17.929	14.9
Allegheny Region, Pa., R. R.	123,307	70,205	I. 53,102	75.9
Penn and Westmoreland	328,955	229,510	I. 99,445	43.2
West Penna. R. R.	88,921	89,764	D. 843	0.9
Southwest Penna. R. R.	11,015	9,685	I. 1,330	13.7
Pittsburgh Region, Pa. R. R.	163,891	158,585	I. 5,306	3.4
Total bituminous	818,026	677,715	I. 140,311	20.7

Bituminous reports are from the western end of the Pennsylvania Railroad chiefly; the Barclay coal comes from the bituminous region which borders the North Branch of the Susquehanna in Northern Pennsylvania.

Coke tonnages reported for the three months are as follows:

	1882.	1881.	Inc. or Dec.	P. c.
Bellefonte & Snow Shoe	6,522	2,333	I. 4,189	179.5
Allegheny Region, P. R. R.	27,959	26,046	I. 1,913	7.3
Penn and Westmoreland	74,844	51,137	I. 23,707	46.5
West Penna. R. R.	34,775	25,838	I. 8,937	34.4
Southwest Penna. R. R.	475,980	391,729	I. 84,251	37.6
Pittsburgh Region, P. R. R.	191,360	130,750	I. 60,610	46.3
Total coke	811,440	627,833	I. 183,607	29.2

These coke shipments are all over the Pennsylvania Railroad and branches. No reports are received from the Baltimore & Ohio or the Pittsburgh river trade.

The coal tonnage of the Pennsylvania Railroad for the three months was as follows:

	1882.	1881.	Inc. or Dec.	P. c.
Anthracite	353,745	355,024	D. 1,297	0.4
Semi-bituminous	867,979	649,025	I. 218,954	33.7
Bituminous	716,089	557,749	I. 158,340	28.4
Coke	811,440	627,833	I. 183,607	29.2
Total	2,749,253	2,189,631	I. 559,622	25.6

The total tonnage in January was 810,571 tons; in February, 923,788; in March, 1,114,894; total, 2,749,253 tons. This tonnage is for the main line and branches in Pennsylvania, and does not include the Philadelphia & Erie Division.

Receipts of coal at Boston for the three months to April 1 were:

	1882.	1881.	Inc. or Dec.	P. c.
Anthracite	1,432,937	1,464,820	D. 31,883	2.2
Bituminous	371,734	282,982	I. 88,752	31.3
English and Nova Scotia	61,366	34,674	I. 26,692	76.3
Total	1,866,037	1,782,476	I. 83,561	0 5

The bituminous coal receipts are from American ports, and are nearly all gas and steam coal.

San Francisco coal receipts for the three months ending March 31 were 223,700 tons, against 183,100 for the corresponding period last year, an increase of 40,600 tons, or 22.1 per cent. The March receipts were 64,400 tons, of which 32,900 tons were Pacific Coast coal, 11,900 tons from British Columbia, 3,000 tons anthracite and the rest Australian and English.

Passenger Rates.

The Pennsylvania Railroad Company has always made an extra charge of $5 on its limited fast express between New York and Chicago, and that road and the New York Central will hereafter add $4 to the fare on the night express leaving New York in the evening, making the fare $24. The extra rate from Philadelphia to Chicago will be $3.50, and the Baltimore & Ohio will also add $3.50 to the rate from Baltimore on its fast night train.

Southern Railway & Steamship Association.

The Rate Committee met at Chattanooga, Tenn., April 6, and continued in session two days, the work on hand being the making of rates from Ohio River points southward, which was made necessary by the new arrangement under which rates from Western points are made to the Ohio River only.

New York State Canals.

The New York State Canals, including the Erie, the Champlain and the minor canals, were opened for navigation April 11. With one exception, this is the earliest opening for many years.

New England Freight Traffic.

The New York & New England Railroad in March received 2,582 loaded freight cars from the Erie at Newburg an increase of 800 over the previous month. In the month of March the Boston & Albany received 11,060 loaded

freight cars from the New York Central at Albany, and delivered 12,114 to the same road. There were sent east from Worcester for the same period 8,103 cars loaded.

Western Weighing Association.

This association weighed 48,161 cars of freight in March, and 42,064 in February.

Dogs and Guns.

The following circular has been issued from the office of General Manager Merrill, of the Chicago, Milwaukee & St. Paul road:

"Train baggagemen or other employés of this company are prohibited from making any charge or soliciting fees or gratuities from passengers for the transportation of dogs or guns in the baggage trains by which the owner or keeper thereof travels as a passenger. No dog or gun will be received at any station, or on board of any train, unless the owner or keeper thereof accompanies the same. While these species of property are at the sole risk of the owner in all cases, yet all employés concerned in their transportation will exercise due and proper care for the safety of the same while in their custody, and treat the owners and keepers therof with courtesy. Division superintendents will see that this order is properly enforced, and will take due notice of any complaints for violation thereof."

Illinois Commission Rates.

The Illinois Railroad Commissioners have refused to suspend their new classification and rates, or to postpone the date when they go into effect. It is not yet known whether the roads generally will comply with the new schedules or not.

THE SCRAP HEAP.

Locomotive Building.

The Schenectady Locomotive Works, at Schenectady, N. Y., are completing an order for 35 engines for the St. Paul, Minneapolis & Manitoba road.

The Brooks Locomotive Works, at Dunkirk, N. Y., have an order for two narrow-gauge Mogul freight engines for the Tonawanda Valley & Cuba road.

The directors of the Danforth Locomotive Works, in Paterson, N. J., have elected James Cooke President in place of the late John Cooke; John S. Cooke, General Manager; Wm. Berdan, Secretary and Treasurer. Messrs W. O. Fayerweather and Watts Cooke have been chosen directors in place of Wm. T. Ryle and Charles Danforth, resigned. It is understood that the stock owned by the Ryles and the estate of the late Charles Danforth has lately been sold.

The Mason Machine Company, at Taunton, Mass., has contracts for a number of locomotives still to be filled.

Car Notes

The Cleveland Bridge & Car Works in Cleveland, O., are building 150 side dump coal cars for the Lake Shore & Michigan Southern road.

The Northwestern Car & Manufacturing Co. has been organized at St. Paul, Minn. The capital stock is fixed at $5,000,000.

Milliken, Boyd & Co. at Youngstown, O., are building 50 coal cars for the Lake Shore & Michigan Southern road.

The Barney & Smith Manufacturing Co. at Dayton, O., is completing a large order for passenger and sleeping cars for the St. Paul, Minneapolis & Manitoba road.

The Jones Car Manufacturing Co., of Schenectady, N.Y., has begun to erect a large brick building in West Troy, which will be used for the manufacture of street cars exclusively, the building of steam railroad cars being continued at Schenectady.

A. French & Co. in Pittsburgh, Pa., announce that their new works are now completed and in working order, making their capacity equal to any demand. They are prepared to ship springs from stock immediately, or to deliver springs made to order within 30 days.

Bridge Notes.

The Corrugated Metal Co. at East Berlin, Conn., has a contract for a bridge at Glendale, Mass., over the Housatonic River.

The Morse Bridge Co. at Youngstown, O., has the contract for a new bridge over the Shenango River at Mahoningtown, Pa. It will be 425 ft. long.

The Philadelphia Bridge Works of Cofrode & Sayler at Pottstown, Pa., have taken the contract for an iron bridge over the Monongahela River for the Pittsburgh & Youghiogheny road.

Iron and Manufacturing Notes.

The extensive new works of the North Chicago Rolling Mill Co. at South Chicago are nearly finished. Two of the blast furnaces have been in operation for some time, and two more are nearly ready to start up. The rail department consists of the rail mill, a building 499 by 80 ft., with two wings, one of which is 328 by 80 ft., and the other 168 by 80; a gas house, 204 by 60 ft.; a boiler-house, 130 by 47 ft. The converting department will be 124 by 47 ft.; an engine-house, 95 by 50 ft.; a converting house, 114 by 104 ft.; a spiegel cupola building, 70 by 50 ft.; a repair building, 280 by 80 ft; a crusher-house, 52 by 112 ft.; and a gas producer house, 65 by 45 ft. The blast-furnace department consists of a boiler-house, 268 by 97; four casting-houses, each 62 by 150; a stock-house, 368 by 98, and two elevators, each 125 ft. high.

Cowan Furnace, at Cowan, Tenn., turned out 2,225 tons of pig-iron in March.

The office of the Michigan Carbon Works is at the foot of First street, Detroit, Mich. The works are at Rougeville, just west of Detroit, adjoining the Rouge River and several railroads. The works manufacture glue, animal charcoal, sulphuric acid and fertilizers.

The East Chattanooga Iron Co., a new organization, has begun to build a new blast furnace in Chattanooga, Tenn. It is to cost $200,000.

The Co-operative Iron Works at Danville, Pa., are running on street rails.

The works of Brown, Bonnell & Co., at Youngstown, Pa., are running double turn.

The Montour Iron & Steel Works at Danville, Pa., are running on orders for rails. They will soon begin the manufacture of car axles.

Himrod Furnace at Youngstown, Pa., has gone into blast.

The Glendower Iron Works at Danville, Pa., are running on light iron rails and merchant bar.

W. H. Kritsinger & Co., at Fort Madison, Ia., have begun the manufacture of railroad wheelbarrows.

The New York & Ontario Iron Co. offers to build a blast furnace, rolling mill and steel works in Belleville, Ont., provided the town will take $100,000 stock and give the land needed.

The Western Wheel Scraper Co., of Mt. Pleasant, Ia., has completed an addition to its shops 32 by 66 ft., two stories. The company has also been adding new machinery, and is now in shape to double the last year's business. The all-steel double-bottomed drag scraper and the wheeled scraper are now used in every state in the Union, and were exported last year to Mexico, Australia and South America.

Prices of Rails.

Quotations of steel rails vary very much, but current prices appear to be still from $54 to $58 per ton at mill, with an active market reported.

Iron rails are very dull and quotations are nominal at $46 to $50 per ton at mill, according to section.

Spikes are somewhat variable, and are quoted at $2.90 to $3.15 per 100 lbs. Fish-plates, $2.60 to $2.70; track-bolts, $3.65 to $4.20.

Old iron rails are very dull. Some small sales are reported at $28.75 to $29.50 per ton in Philadelphia.

Edison's Electric Brake.

Mr. Edison has taken out a patent for an electric brake which consists essentially of a large horseshoe field magnet, much the same form as those used in his dynamo-machines, but instead of the ordinary armature a disk on the axles runs partly between the cheeks of magnetic poles, and when a circuit is made the disk, of course, revolves under a magnetic resistance, and so brings its axle to rest.

Steel Plates for Boilers.

M. Cornut, in a paper contributed to the Paris Steam-Users' Society, gives it as his opinion that—at least at present—steel plates cannot be sufficiently depended on to be used for this purpose. More care is required in their manipulation than the majority of makers seem disposed to bestow, and their much more rapid corrosion, taken in connection with their thinness as compared with iron, adds another risk. Two steel boilers ordered by the Southern Railroad from the Fives-Lille Company, not having stood the test, the railway decided (notwithstanding the offers of the Creusôt Company to give a guarantee) to renounce the use of steel for their construction. The Paris, Lyons & Mediterranean Company, as well as Messrs. Krupp, have come to the same conclusion.

A Signalman's Long Hours.

In his recent report on the collision by which five people were killed and many injured, which occurred on the 25th of November, 1881, near Tayport Station, on the North British Railway, Major Marinden, speaking of one of the signalmen, says: "At the time of the accident he had been on duty for nearly 13 consecutive hours, while his daily work on week days, exclusive of the time he may have taken in walking to and from his home, would average over 15¼ consecutive hours, even if the last train, the arrival of which he had to await, was punctual to the minute. It is hardly too much to say that it is a scandal that such an amount of work, as is implied by these hours, should be exacted from any man upon whose vigilance depends the safety of the public, and who, by a momentary act of forgetfulness, may, as in this case, cause a fatal catastrophe; and I was glad to learn, that since the date of this accident, an improvement in this respect has been made at Tayport."

Organization of the Department of Rolling Stock on the Northern Pacific.

The following is the official circular announcing the organization of this department:

"The duties, powers and privileges of the Superintendent of Motive Power, Machinery and Rolling Stock, as prescribed in the plan of organization for the Transportation Department of the Northern Pacific Railroad, issued Jan. 1, 1882, are amended and enlarged as herein provided, and all previous instructions to other officers, inconsistent therewith, will be modified accordingly.

"The Superintendent of Motive Power, Machinery and Rolling Stock shall have a general supervision and control over the motive power of the several divisions, and of employés of Machinery Department, including master mechanics, foremen, locomotive engineers, firemen and workmen, and shall have power when necessary to appoint or dismiss any of said officers or employés, with such limitations as the General Manager may prescribe.

"He will require that the standards and systems of the company be adhered to. He shall furnish the master mechanics of the several divisions with copies of all standard drawings, and duplicates of all templets and gauges, and shall give such instructions as may be required to insure uniformity in the construction and repair of the rolling stock and machinery. He shall visit the shops of the several divisions from time to time, give such directions to master mechanics and foremen as he may deem necessary, make such suggestions to division superintendents and other officers as may promote the efficiency and economy of the service, consult with these officers and with the General Manager and Superintendent of Transportation in reference thereto, and make such reports from time to time as the General Manager may prescribe.

"It shall be the duty of the Superintendent of Motive Power to make or cause to be made such tests, keep such records, and make such reports thereon as the General Manager may require, to determine the comparative value of fuels, of lubricants, of boilers, engines or other machinery, the relative durability of wheels and axles, and the various kinds of materials used or proposed to be used in railway service. He shall take such precautions in regard to all tests as will insure reliable results, without bias for or against the material or invention tested.

"The duties of locomotive engineers, relating to the running and care of locomotives, the use of fuel and stores, will be prescribed by the Superintendent of Machinery, subject to the approval of the General Manager.

"The Superintendent of Machinery shall keep a complete record of all rolling stock, and of the condition of the same, and of the location of engines. He will have power, when the requirements of business will permit, to withdraw from service engines and cars requiring repairs, and will direct when and in what manner such repairs shall be made. He will keep well advised of the demands for rolling stock on the several divisions, consult with the Superintendent of Transportation and with the division superintendents as to their requirements, and may change the location of engines, at the request or with the concurrence of the Superintendent of Transportation, for the relief of blockades or the more prompt and efficient movement of traffic. He may transfer engines from one division to another when in his judgment better results can be secured thereby. He will place repaired engines and new engines in locations to which they may be best adapted, or where most urgently required. He will pay special attention to the passenger train cars, including sleepers, and will cause such repairs to be made as from time to time may seem needful, and for this purpose will have power to remove them from service when in his judgment they should be placed in shops; but such removal shall not be made, unless considerations of safety to life or property require it, if the transportation service will be seriously crippled thereby. He will be responsible for the use of fuel and stores on engines, and of materials used in the construction and repairs of rolling stock, and must keep such records and accounts, under advice of the Auditor, as will at all times show what disposition has been made of the material, and the quantities held in stock at division and general shops and depots of the railroad. He will account for all old material which properly belongs to the Machinery Department, and will advise the Auditor and Purchasing Agent of the quantities on hand for disposition or sale, and the location of the same.

If any differences should arise between the Superintendent of Motive Power and the heads of other departments, in reference to their duties or the proper distribution of the rolling stock, the same shall be referred to the General Manager.

"Foremen of road engines will be regarded as assistants to the Superintendent of Motive Power. They will be appointed by him, with the approval of the General Manager, and act under his instructions."

REQUISITIONS.

"Requisitions on the Purchasing Agent for supplies for the general stores require the approval of the General Manager, who, in case of necessary absence, may delegate authority for such approval to the Superintendent of Transportation.

"Requisitions on the Purchasing Agent for division supplies require the approval of division superintendents, and also of the head of the Transportation, Machinery or Road departments for which the supplies may be ordered.

"Requisitions for stationery for agencies must be made on the Auditor and not on the Purchasing Agent.

"Requisitions for stationery for Machinery and Road departments will be made upon the Auditor, with approval of the heads of these departments.

"Stationery, printing and advertising, required for the General Freight and Passenger departments, shall be furnished on orders from the heads of these departments, approved by the General Manager."

Train Robbery.

A dispatch from Dallas, Tex., April 8, says: "A northbound train on the Gulf, Colorado & Santa Fe road was robbed a few miles south of Cleburne, at a water station called Blum, at 10 o'clock Friday night. Six men, wearing masks and roughly dressed, entered the passenger coach. Two at each end guarded the doors and the other two went through the cars with cocked revolvers. All the passengers did as they were ordered. When the robbers were about through with the passengers the conductor entered the car; and, seeing what was going on, rushed for the express car. One of the robbers fired at him but he escaped uninjured, the ball passing through the express car door. All the robbers then jumped off and disappeared. The amount secured is not known, but several parties gave up large sums. One of the passengers says the robbers got about $1,300; while others say the amount was not over $400 or $500. It is probable the victims do not care to make known the amount of their losses. The officers were notified at Ft. Worth, and a posse with bloodhounds were sent in pursuit. No arrests are reported yet. It is thought this is the same gang that attempted to wreck a north-bound night train three weeks ago by removing a rail. The authorities suspect certain parties, green hands at the business, and will endeavor to secure their arrest. They carried old cap and ball navy revolvers."

A Negro's Railroad.

An interesting story of negro intelligence, enterprise and energy, coupled with a love of the negro race, was related to a *Press* reporter last evening by Special Assistant Attorney-General William W. Ker, who had just returned from a trip through the Carolinas. The train, which was coming North, was boarded at Wilmington, N. C., by a large number of bright-looking colored men, who were delegates to a convention to be held at Raleigh. One of these delegates was a genuine, coal-black African, of good address and manly bearing, who appeared to be about 45 years of age. His name is E. F. Martin. He said that he was born a slave, and was owned by the great Georgia rebel, Vance. When the war broke out he accompanied his master to the field as his body servant. Later he worked through the Union lines, and was engaged at Sherman's headquarters as a guide. Martin helped to guide the army toward Atlanta, where his knowledge of the fortifications was of great value to Sherman. After the fall of Atlanta Martin showed the way to Savannah, and continued in the Union army until his discharge. He had saved his money, and at the close of the war he was able to go into business as a railroad contractor, working with and for white men in Georgia. With the profits carefully saved from this business he went to North Carolina, and at Wilmington he secured the contract to carry the mails from Wilmington to Snead's Ferry. He is now the only colored contractor in the United States mail service in the South.

Martin's mail route ran east from Wilmington about seven miles to Wrightsville, and then north along the coast of the ound. He soon became convinced that this country would be greatly developed by a railroad, and that such an enterprise would pay well. The land is fertile and cultivated, while along the coast are productive oyster beds and inlets swarming with fish. Martin accordingly had a line surveyed from Wilmington to Wrightsville, and south along the coast. The property owners along the line deeded Martin 65 feet each side of it. The Legislature next granted a charter calling for 100,000 shares of stock at $25 a share.

The next step was to build the road, and now Martin's scheme began to take a philanthropic shape. He planned to make the road a distinctively negro enterprise. He would build it with colored labor and colored capital, and man the trains with colored conductors, brakemen and engineers. To carry this out he issued posters, which were put up far and wide, describing the "Wilmington, Wrightsville & Onslow Coast Railroad," and making this proposal:

"THE POOR MAN'S CHANCE.

"I offer to all men who desire an interest in this enterprise the privilege of obtaining stock in the road for labor or material as follows: For 25 days' labor or for $25 worth of material furnished, one share of stock will be issued. If a person works 50 days on the road, he will be given $25 in money, and also a share in the road worth $25. If any poor man wants to own property or a share in the railroad, now is his golden opportunity."

Negroes flocked to the survey line with picks and shovels and worked with a will, feeling that every blow was struck for their own prosperity. At the present time 14 miles are graded. Said Martin, as he talked earnestly to Mr. Ker on the train, "I have put all my money into this, but I can't build the road alone. I believe that if I succeed, and I know I shall succeed, that I shall have done the work of a lifetime for my race." He added that his great difficulty just now was to procure rails for the line already graded. If the rails could be laid seven miles to Wrightsville, rolling stock could be leased, and this single section of the road would pay well enough to equip the rest of the line. But he could not buy the rails without more capital, so great is the demand and so high are the prices. He asked his new acquaintance from the North to let people know of his plans and make, what he felt sure, would not only be a profitable investment but also a benefit to the whole colored people. If the line were in Georgia, he could readily raise the money, where he was well known; but in North Carolina he was as yet comparatively a stranger. He gave the addresses of a number of white people of position who would back every word he said. When the railroad is running it will have a

through southern connection, and, by building a line from Wrightsville north to Norfolk, Va., there would be a complete coast line, with two markets—Norfolk and Wilmington. At present little steamers running up and down the Sound carry the coast produce, which could be transported more speedily and profitably by the railroad.—*Philadelphia Press.*

The Survival of the Fittest.

When the Atlantic express train over the Central road reached Niles the other day a Detroit commercial traveler boarded the train to find every seat taken. In the centre of one coach one seat was occupied by two satchels, and another by an overcoat and hat, while the owner of the articles was in the smoking-car. The Detroiter gathered up all the baggage and placed it on the wood box and occupied the seats with his own, and he had just got comfortably settled when the late occupant returned from his smoke. He saw what had transpired, and he was white with anger, when he began:

"Who moved my baggage?"

"I did," was the reply.

"Sir, I represent the wholesale crockery house of Blank & Blank of New York, and I——"

"I knew it—saw your name on the baggage," interrupted the other. "Haven't you see the papers to-day?"

"No, sir!"

"I thought not. Well your house has failed for $288,000—can't pay 20 cents on the dollar—bad bust—no time for you to swell over two seats—crowd in somewhere or stand by the stove, and when you get to Detroit I'll help you to get a pass home. Sorry for you, and all that; but our house is rated A 1, and has a reserve of $75,000 in mortgages, and the survival of the fittest is a principle older than the hills. Have a cigar?"—*Detroit Free Press.*

Both Sides.

New York's great issue: "This great and good anti-monopolist," observed the coroner, in some opening remarks to the jury, who were holding an inquest over the body of a man found floating in the canal, "this great and good anti-monopolist—" "But why do you call him a great and good anti-monopolist?" interrupted one of the jurors. "Because," continued the coroner, holding up a package of duplicate railroad tickets, "we found these in his pockets."—*Brooklyn Eagle.*

J—y G—ld Your poem on "The Shorn Lamb" received. Please call at this office and bring your tin box. Not for publication, but to create confidence.—*Boston Commercial Bulletin.*

It was an independent-looking fellow who was standing on the railroad track, apparently paying no attention to the fact that a train was rapidly approaching.

"I say," said the station-master, "you had better get off the track, or you will get run over."

"I fancy that is my own affair if I get run over," was the reply.

"Yes, I reckon so, but who is going to attend to taking up the mess afterwards? It's not me." And reaching out his right foot he kicked the indifferent man fifteen feet and nine inches by actual measurement.—*Texas Siftings.*

An Impostor.

A party by the name of Charles Crawford has been using the letter heads of the Ogden House to inform the public that he was the "General Agent of the Union Pacific Road" in Chicago, and anxious to procure telegraph operators for that road, paying $55 and $60 per month, without night work. He claimed that he had already procured 14 men, who would be sent West by giving references from station agent.

Mr. J. J. Dickey, Superintendent of Telegraph of the road at Omaha, telegraphed yesterday to Captain Hodgson, the Chicago agent, that the man was an impostor, and should be exposed, if not prosecuted.—*Chicago Inter-Ocean, March 30.*

Accommodating Emigrants.

Last Saturday night the Rock Island took out 450 emigrants, destined for Manitoba. When the emigrants arrived at St. Paul it was found that, owing to the rush of business, the St. Paul, Minneapolis & Manitoba was short of cars and unable to take the emigrants to their destination without compelling them to lay over at St. Paul about 24 hours. The officials of the Albert Lea route thought that to subject these people to so long a delay would be a great hardship upon them, and might act as a detriment to the good reputation of their line. They therefore loaned a train to the St. Paul, Minneapolis & Manitoba to run through to Winnipeg with these people. The emigrants greatly appreciated the interest manifested in their behalf by the officials of the Albert Lea line, and rewarded them with a series of complimentary resolutions and three cheers.—*Chicago Tribune, April 5.*

OLD AND NEW ROADS.

Asheville & Spartanburg.—Arrangements are being made for the extension of this road from the present terminus at Hendersonville, N. C., to Asheville, 22 miles. Most of the line was graded several years ago.

Atchison, Topeka & Santa Fe.—It is reported that this company's engineers have been for some time quietly at work surveying a line from Caldwell, Kan., southward through the Indian Territory to Texas.

Baltimore & Ohio.—At the monthly meeting of the board in Baltimore, April 12, the usual semi-annual dividend of 5 per cent. was declared, leaving a surplus of over $600,000 for the half-year, which is to be used for construction purposes.

Boston & Albany.—A special meeting of the stockholders was held in Boston, April 12, to vote on the question of accepting the act providing for the sale of the Massachusetts state stock to the company. No action was taken, but after a long and excited debate the meeting adjourned for two weeks.

Bradford, Eldred & Cuba.—The grading on the extension of this road from Cuba, N. Y., to Rushford is well advanced, and tracklaying will be begun as soon as the crossing of the Tonawanda Valley & Cuba road is put in.

The company has just made its second quarterly dividend of 3 per cent. from the earnings of the completed portion of the road.

Bristol & New Haven.—Surveys are being made for a railroad from Bristol, Vt., westward to New Haven, on the Rutland road. The distance is about six miles. The people on the line expect to grade the road, and to have the Central Vermont furnish the iron and work the line.

Buffalo & Great Western.—This company has been organized to build a connecting line about one mile long in the city of Buffalo, ending at the International Bridge.

Buena Vista.—Work has been begun on this road, which is to run from Buena Vista in Marion County, Ga., northward to the Southwestern Railroad at Geneva. The distance is about 23 miles.

California Southern.—Since Jan. 1 there have been 29.5 miles of track laid on this road, making the terminus on March 31 a distance of 87.1 miles from the starting point on San Diego Bay, Cal.

Cape Fear & Yadkin Valley.—The New York corporation, which contracted to purchase the interest of the state of North Carolina in this road, has failed to comply with the contract, and has not made the first payment required, thereby forfeiting the contract.

Central, of New Jersey.—The United States Circuit Court at Trenton on April 8 dismissed the application of E. C Knight and others for an injunction to restrain this company from issuing any new stock under authority of the act lately passed by the New Jersey Legislature.

The Gowen party has issued a circular to stockholders, in which they say that they intend to vote for H F. Little as President, John Kean as Vice-President and three other directors to be named by those gentlemen, reserving the remaining six directors for themselves. They urge the necessity of remaining on good terms with the Reading and the Baltimore & Ohio.

A director of the other party says, on the other hand, that there is no intention whatever of quarreling with those companies, but an objection to being controlled by them He says that the Reading traffic brings very little net profit to the road, and that other and much more profitable connections are under negotiation.

Central, of South Carolina.—This road, which was lately completed from Lane, S. C., northwest to Sumter, 38 miles, has been leased to the Northeastern Railroad Company and the Wilmington, Columbia & Augusta Company, and will be operated for their joint account. The lessees agree to pay all taxes, to keep the road in good condition, to pay $1,000 yearly to keep up the organization and to pay a yearly rental of $30,000. The Central Company has $300,000 in 6 per cent. bonds and $150 000 stock, so that the rental will be sufficient to pay the interest and 8 per cent. on the stock The road will be a feeder of some value to the lessees, but it is doubtful whether it can earn the rental for some time to come.

Chesapeake & Ohio.—The long pending suits between this company, the Ohio Falls Car Company and certain parties who bought bonds of the old Chesapeake & Ohio Company held by the car company as collateral, has been finally settled by a compromise. All the suits have been withdrawn, and the holders of the bonds are recognized and receive such securities as they would have been entitled to had their bonds been recognized originally in the reorganization.

Chicago, Milwaukee & St. Paul.—The Chicago *Tribune* says: "The Emigration Bureau of the Chicago, Milwaukee & St. Paul Company has been notified in the past few weeks of several gross abuses practiced by the government and private land agents. To avoid this in the future, the company has decided to appoint special emigrant agents for each of its western divisions, who are to accompany the settlers along the division and to look after them and their wants until they have become well acquainted with the country. Two appointments were made yesterday. For the Hastings & Dakota Division, Mr. Edward S. Williams, of Cambria, Wis., has been appointed, and for the Iowa & Dakota Division Mr. David Moses has been selected, both appointments to go into effect immediately. Several further appointments will be made during the present week, and regular western branch emigration bureaus will be established at different points on the company's line before the emigration rush from the old country begins."

Chicago, St. Louis & New Orleans.—A suit has been begun in the United States Circuit Court at Memphis, Tenn., by LaFayette County, Miss., as a stockholder of the old Mississippi Central Company, to recover certain money which was spent on the road by the Receiver previous to the sale and reorganization by which it passed into possession of the present company. The claim is that the Receiver spent money in improving the road and that he turned over to the purchasers at foreclosure sale certain money and property, when the money so spent and turned over should rightfully have been held and used by him as a trust fund for the stockholders and other creditors. The former Receiver, his sureties and the Illinois Central Company are included as parties defendant in the suit.

Two companies—the Nashville, Canton & Aberdeen, and the Yazoo & Mississippi Valley—have recently been organized to build branches of this road from Canton, Miss., northeast and northwest.

Chippewa Valley & Superior.—Track on this road is now laid from Eau Claire, Wis., southwest 30 miles, and work is being pushed. The company hopes to reach the Mississippi opposite Wabasha by June.

Danville, Indiana & Michigan.—This company has filed articles of incorporation for a railroad from Danville, Ill., to the Indiana line. It is to be part of a road from Sturgis, Mich., to Danville.

Danville, Mocksville & Southwestern.—Track is now laid on this road from the Danville & New River road at Cascade Junction (20 miles west of Danville, Va.) southward eight miles to Leaksville, N. C. Trains have begun to run to Leaksville.

East River.—This company has been organized to build a branch or extension of the New River road, now under construction, to reach some extensive mineral and lumber districts in the southern corner of West Virginia. Like the New River Company, it is controlled by the Norfolk & Western.

East Tennessee, Virginia & Georgia.—On the extension of this company's Macon & Brunswick line from Macon, Ga., to Atlanta, track has now been laid for 30 miles northwest from Macon. The grading is nearly all finished and the bridges are nearly all in place, in spite of some delay from wet weather.

On the Cincinnati & Georgia line, between Atlanta and Rome, tracklaying will soon be begun at Rome and at Sweetwater Junction, 17 miles from Atlanta, to which point the Georgia Pacific track will be used from Atlanta. Work on the grading is well advanced, and it will soon be all finished except the tunnel near Rockmast.

Farmville & Staunton River.—Meetings are being held in aid of this projected road, which is to run from Farmville, Va., on the Norfolk & Western road, south by east through Prince Edward and Charlotte counties to the Staunton River. An extension is also proposed, from Farmville north to the Richmond & Allegheny road.

Gainesville & Monroe.—It is proposed to build a railroad from Gainesville, Ga., on the Atlanta & Charlotte Air Line, southward to Monroe, the terminus of the Walton road. The distance is about 45 miles, through a country now without railroad facilities.

Georgia Pacific.—Track on this road is now laid for 18 miles westward from Atlanta, Ga., and the bridges over the Chattahoochie River and Nickajack Creek are finished. The road will be completed in a few days to Sweetwater Junction, 17 miles from Atlanta. To this point the track will be used in common by this road and the Cincinnati & Georgia.

Hannibal & St Joseph.—It is reported that the Chicago, Burlington & Quincy Company is negotiating for the controlling interest in this road with the New York Syndicate which holds a very large part of the stock. It is said that an agreement has not yet been reached as to the price to be paid, a very high value having been put on their stock by the syndicate.

Indianapolis & St. Louis.—The Indianapolis *Sentinel*, of April 8, says: "Mr. H. B. Hurlburt, Trustee of the second and third mortgages of the Indianapolis & St. Louis Railway Company, yesterday afternoon filed in the United States Court a bill for the foreclosure of these mortgages and the sale of the road; also asking for the appointment of a receiver pending the litigation. The second mortgage calls for $1,000,000, dated Oct. 1, 1870—the bonds running for 31 years, but by reason of a failure to pay interest they have all become due. The third mortgage is for $500,000, the principal of which became due July 1, 1881. The bonds held by Charles O'Conor are second-mortgage bonds, and this action has been hastened by the demand of Charles O'Conor that the principal and interest of his bonds should be paid in full at a time when the road is embarrassed by a large floating debt, and the earnings insufficient to pay running expenses. Back of the second and third is a first mortgage of $2,000,000. The foreclosure is subject to this mortgage. It is thought that Judge Gresham will render a decision on the matter next week."

Kansas City, St. Joseph & Council Bluffs.—Through trains on this road now run to Omaha, crossing the Missouri at Plattsmouth, and running thence to Omaha over the Chicago, Burlington & Quincy tracks. Local accommodation trains are run between Pacific Junction and Council Bluffs.

Knox & Lincoln.—A meeting of representatives of the towns owning stock in this road was held in Damariscotta, Me., April 8. It was resolved to sell the road to the Maine Central for $1,300,000 in 5 per cent. bonds, to have 40 years to run, but redeemable at the option of the company at any time after 20 years. This proposition will be submitted to the Maine Central. The price named is about $26,500 per mile, and involves an annual interest charge of $65,000, which is $5,000 a year more than the Maine Central offered as rent for the road.

Knoxville & Cincinnati Southern.—The contract for grading this road has been awarded to Condon Brothers, of Knoxville, Tenn. The road is to run from Knoxville westward to the Cincinnati Southern at Emory Gap.

Lake Athabasca & Hudson Bay.—This company's charter is now before the Canadian Parliament. The proposed line is from the east end of Lake Athabasca, in the Northwest Territory, to Ft. Churchill, on Hudson Bay. The charter also gives the company authority to own or hire vessels to run between Ft. Churchill and European ports.

Louisville, Evansville & St. Louis.—Trains have begun to run through from Oakland, Ind., to Mt. Vernon, Ill., 90 miles, the rails having been laid to Mt. Vernon about the close of last year. Work is progressing steadily on the gap between Oakland and Milltown.

It is announced that a second mortgage upon this road has been authorized, to secure an issue of $1,000,000 bonds to be used in completing the road and buying equipment.

Manitoba Southwestern.—Track is now laid on this road from Winnipeg, Manitoba, southwest 53 miles, and trains will soon be put on the road.

Marietta & Cincinnati.—The plan of reorganization as amended and now submitted for adoption provides for the consolidation with the company of the leased Cincinnati & Baltimore and the Baltimore Short Line companies. The road is to be sold under foreclosure and a new company organized, which is to issue bonds as follows:

1. Preferred mortgage bonds (4½ per cent.) to the amount of $500,000 to pay off Receiver's certificates and debts.

2. First-mortgage bonds to the amount of $7,185,000, of which $1,250,000 bonds will bear 6 per cent., the balance 4½ per cent. The 6 per cent. bonds to be issued for Cincinnati & Baltimore stock; the 4½ per cent. bonds to be issued, $1,389,000 for Baltimore Short Line stock and accrued rentals and $4,546,000 for present first-mortgage bonds and interest.

3. Second-mortgage 5 per cent. bonds, $3,040,000, for principal and two-thirds accrued interest on present second mortgage bonds.

4. Third-mortgage 3 per cent. bonds (4 per cent. after 1891), $2,270,000, for one-third accrued interest on second-mortgage bonds and two-thirds principal of third-mortgage bonds.

5. First income bonds, $3,410,000, for one-third principal third-mortgage bonds, accrued interest on same, and for assessments on stock.

6. Second income bonds for principal of present fourth-mortgage bonds.

Income bonds to have votes. All bondholders are to pay an assessment of 0½ per cent., to cover reorganization expenses. Cincinnati & Baltimore stockholders to have the option of taking special preferred stock in place of bonds.

The stock will be issued as follows: Present first-preferred stock to receive new preferred stock and pay an assessment of $2.50 per share.

Second-preferred stock to receive one-half present amount in new preferred stock, and pay an assessment of $1.50 per share.

Common stock to receive an equal amount of new common stock, and pay an assessment of $1.50 per share.

For all assessments paid first income bonds will be issued.

Old floating debt claims to be paid one-half in preferred and one-half in common stock.

The Baltimore & Ohio Company will surrender all its claims for coupons paid, advances, etc., and receive $3,100,000 in preferred stock and $3,100,000 in common stock.

This plan must be accepted by two-thirds in amount of all the bonds and stock by April 15 to become valid and binding.

Marquette, Houghton & Ontonagon.—The Michigan Board of Control of state lands has directed this company to begin work on the extension of its road from L'Anse, Mich., to a connection with the Ontonagon & Brule River road at its present terminus, 20 miles east of Ontonagon. The road must be completed by June 1, 1883, to save the land grant.

Memphis & New Orleans.—This company proposes to build a railroad down the east side of the Mississippi from Memphis to Vicksburg, making an embankment which will serve as a road-bed and at the same time as a levee against the encroachments of the river. The company will ask Congress for a government indorsement of its bonds.

Mexican Central.—This company has decided to raise the further sum of $6,032,500 in order to complete the road as quickly as possible, deeming it desirable to have the whole road opened in 1883, if it can be done. A circular offering new securities for subscription will be issued in a few days; preference will be given to subscribers to the first block, each subscriber being entitled to take an equal amount of the block now to be offered. The company's proposition is as follows:

"For $4,750 in cash, payable 20 per cent. in 10 days from date of acceptance, and the balance as the same may be called, but not more than 15 per cent. in any one month, the company will deliver to the subscribers 40 shares of the capital stock at its par value of $100 per share, $5,000 in its 30-year 7 per cent. first-mortgage bonds, and $1,000 in its income bonds. To enable the company to negotiate its securities in Europe and Mexico, the right is reserved to withdraw from the subscribers ratably any part of the whole of this subscription at any time prior to Oct. 15, 1882; and, in such case, the subscribers shall be repaid the money paid by them with interest at 5 per cent., and shall receive $1,000 in income bonds and $1,500 in stock for each block of subscription so withdrawn. All subscriptions must be made in sums of $4,750, or multiples thereof, and must be received at this office on or before (date not yet fixed). Any amount remaining untaken will be disposed of as the directors may think for the interest of the company."

Midland North Carolina.—The work of laying track on this road has been begun at Goldsboro, N. C.

The company has made a proposition to build a branch from the Atlantic & North Carolina road (which it leases) at Kinston north 12 miles to Snow Hill, and thence northeast 15 miles to Greenville, a branch to run from Snow Hill northwest to Wilson, 28 miles, on condition that a subscription of $80,000 is made up on the line.

Mississippi Valley & Ship Island.—It is said that this road has been sold to R. T. Wilson, of New York, for about $400,000. It is completed from Vicksburg, Miss., to Morehead, 26 miles, and is graded for some distance further.

New York & Boston Island.—This company has decided to give up the present location of its projected line into Boston by way of Beacon and Charles streets, in consequence of the very strong opposition of the owners of property. The line as surveyed crossed some of the most valuable residence property in Boston.

New York, Chicago & St. Louis.—Track is now laid from Hammond, Ind., east to beyond Vermillion, O., 285.27 miles, the gap between Hammond and Ft. Wayne having been closed. Track is also laid east of Erie, Pa., to a point 101.02 miles from Cleveland; east from Brocton, N. Y., 9.50 miles, and west from Hammond, Ind., 0.50 mile. This makes 396.29 miles laid in all, an increase of 21.25 miles since our last statement. These 21¼ miles were laid in nine working days, being over two miles a day. The same rate of progress is now kept up, and it is expected that by April 15 over 400 miles of the track will be down, leaving about 120 miles to be laid.

New York, Lackawanna & Western—The Buffalo *Express* has the following statement of progress on this road: "For 118 miles this side of Binghamton the road-bed is finished or will be by the 15th inst., except nine bridges over the Conhocton River. Temporary wooden trestles now span the river, but permanent iron bridges must be built before the road is completed. The longest of these bridges is composed of two spans of 150 ft. each. The Conhocton is crossed 15 times between Binghamton and Buffalo. At Eagle Mills, Morgan's Bridge, Bath, and several other points the course of the river, which is very crooked, has been entirely changed in order to avoid bridging. At Bath the road now runs where the river used to flow.

"On all but 30 miles of the 118 miles of road-bed nearly finished the double track is laid. From Binghamton to Elmira, a distance of 56 miles, trains are now running. The greatest delay now is caused by the heavy work four miles this side of Wayland, Steuben County, on the Bill farm. Here there is a large fill nearly finished and a long cut 65 ft. deep. The bridge at this point is 127 ft. high and formed of three spans each 150 ft. long and one of 80 ft. It is now being put up by the Passaic Rolling Mill Co., the builders. From this point to Culbertson Glen, five miles west, the grade is finished. The Glen is crossed by a bridge 149 ft. high, composed of two spans of 141 ft., two of 30 ft. and one of 40. Four miles west of this, the Scottsburg Valley is crossed with a high pile and timber trestle 1,000 ft. long and 40 ft. high. This trestle is only temporary, and will be eventually filled in. The Genesee Flats, beginning two miles this side, are crossed on a tangent seven miles long.

"The Danville Branch of the Erie is crossed at Mount Morris. Just west of Mt. Morris the Genesee River is crossed by a four span bridge 540 ft. long and 25 ft. high. The work from this point to Moscow, three miles west, is quite heavy. The track on the division from Moscow to Pavilion will be the last laid.

"There is no work of any importance this side of the Moscow till the road crosses the Rochester & State line at Pavilion. At Little Tonawanda Creek the masonry, which is very heavy, is ready for the iron bridge, which is promised in two weeks. Messrs. Alden & Lassig of Rochester are building all the bridges in this neighborhood. One and one-half miles west of Little Tonawanda Creek the road crosses the Attica Branch of the Central and the Batavia Branch of the Erie. The large embankment across the flat at this point is nearly finished. Nothing has yet been done on the bridge over Tonawanda Creek except to excavate the foundations. This bridge is 80 ft. long. For the next 10 miles, which brings the road to the Erie County line, the road is nearly completed. There is no heavy work except a long cut at Losey's, which will be finished about May 1.

"In Erie County, up to the city limits, the only grading to be done is on the Wright farm north of Alden village. From the cut on the farm 14,000 cubic yards of earth remain to be taken. Track is laid from the west end of this cut for a distance of 13 miles to the Thompson farm, a little over a mile east of the city line. As soon as the cut is finished, tracklaying will begin from it east. Tracklaying is being pushed in the Conhocton Valley, and the rails are also being laid at Pavilion toward Buffalo and west of Big Flats, on the line between Steuben and Chemung counties.

"The grade of the Lackawanna out of the Genesee Valley, coming west, is 31 ft. to the mile for eight miles. The highest point on the road between the Genesee River and Buffalo is near East Bethany, Genesee County, 984 ft. above tide. The highest point between Binghamton and Buffalo is at Perkinsville, in Steuben County, 1,354 ft. above tide. It may be interesting to note that the highest point on the Delaware, Lackawanna & Western, of which this road is an extension, is on Pocono Mountain, east of Scranton, Pa., where an altitude of 1,969 ft. is reached."

New York, Lake Erie & Western.—This company has been asked to build a branch from the Rochester Division at True's Siding east to Lakeville at the foot of Conesus Lake. The company has agreed to lay the track and build a station at Lakeville if the people interested will grade the road. It will be 1½ miles long.

New York & Long Branch.—This road is now, under the agreement between the Pennsylvania and the New Jersey Central companies, operated as an independent road, and no longer as a division of the Central. The trains of both roads run over it, but are under the orders of the Superintendent of the road, who is in charge of the traffic. The earnings also are kept separately.

Northern Pacific.—The Land Department reports for March, 1882, sales on the Eastern Division of 26,387 acres for $106,203 and town-lots to the amount of $10,085. On the Western Divisions 11,052 acres were sold for $30,856 and town-lots to the amount of $4,705. The total sales were 37,439 acres for $137,059, and town-lots for $15,600, making the total amount of sales $152,659, against $50,893 in March of last year.

A sale of about 50,000 acres was consummated in March, but the figures are not included above, the exact acreage not being determined yet.

North Shore.—The bondholders who own this road have finally succeeded in selling it to the Long Island Company for $81,250. Train service, which has been suspended for about a week, will be resumed at once. The road runs from Flushing, N. Y., to Great Neck, 6½ miles, and is in very poor condition.

Ohio Central.—Work is now in progress on the extension from Corning, O., to Point Pleasant, where the crossing of the Ohio River is to be made. Contracts have also been let for the grading from Point Pleasant to Charleston, W. Va., a distance of 57 miles, and considerable progress has been made with the work.

Ohio & Mississippi.—The stockholders met in Flora, Ill., April 6, to consider the proposed plan for readjusting the company's affairs, and adjourned until the next day to await the arrival of others.

On the following day, April 7, there was a large representation of the stock. A resolution offered by Mr. Smith, of New York, that the road remain in the hands of the Receiver until the October election of directors or later, was unanimously adopted. Then a resolution reciting in its preamble the resolutions adopted by the directors in January last and in its body granting authority to the directors to reorganize under the scheme heretofore published, and to issue $16,900,000 new consolidated bonds to replace the present funded and floating debt, was adopted. An amendment was adopted providing that in case it is found that the statutes of Indiana prohibit non-residents to be trustees, the board of directors to appoint a trustee or co-trustee in place of the Union Trust Company of New York.

Oregon Railway & Navigation Company.—This company's statement for March and the nine months of the fiscal year from July 1 to March 31 is as follows:

	March.	Nine months.
Earnings	$410,000	$3,721,404
Expenses	231,000	1,877,031
Net earnings	$179,000	$1,844,373

As compared with the corresponding month in 1881, March shows an increase of $96,650, or 30.9 per cent., in gross earnings, and of $43,004, or 31.6 per cent., in net earnings.

The Portland *Oregonian* says: "On March 17, 1881, the first work was done on the railroad to connect Portland with the Dalles. Thursday evening the last rail between the Cascades and the Dalles was laid and a train passed over the road yesterday. Regular passenger and freight trains will be put on as soon as the road is ballasted. It is conceded by all experienced men who have seen the work that no other railroad in the United States presents in 46 continuous miles—the distance between the two places named—like engineering difficulties. Nearly one-fifth of the line is made of bridges and the remainder is through solid rock. Its cost will not be far from $2,300,000. That it was completed within a year reflects no little credit on the enterprise of the Oregon Railway & Navigation Company and the ability and energy of the engineers and superintendents of construction."

Peninsular, of Virginia.—It is stated that work will soon be begun on this road from Newtown, Md., down the Eastern Shore to its southern point, a distance of 62 miles. The terminus will be either at Cape Charles, Va., or at Magothy Bay, opposite the Cape.

Philadelphia & Reading.—The location of the new branch or cut-off intended to complete the line for through western business is now being made. The line will start from Shamokin, Pa., cross the Susquehanna at Sunbury, and follow the West Branch through Lewisburg to West Milton on the Catawissa Branch. Work will be begun as soon as the location is finished. The new line will be about 31 miles long. The contracts for the grading have been let to Thomas Reilly, of Pottsville, and Wm. Nolan, of Reading, Pa., the work to be done by December.

Pittsburgh & Western.—This company has made an agreement with the Pittsburgh, Youngstown & Chicago, which has begun the construction of a line from Youngstown, O., to Pittsburgh on a line nearly parallel to the Pittsburgh & Western. Under this agreement the two lines are to meet at New Castle, Pa., and are to use the track in common, the Pittsburgh & Western owning the line from Pittsburgh to New Castle and the other company the road from New Castle to Youngstown.

Reading & Chesapeake.—This projected road was last year located from Reading, Pa., to the Buck Ridge Summit, a distance of 45 miles. The engineers have now begun the location from Buck Ridge to Carpenter's Point on the Susquehanna, below Perryville, Md., the distance being about 25 miles.

Red River & Lake of the Woods.—This company has filed articles of incorporation for a railroad from the Red River near Grand Forks by Red Lake River to the mouth of Thief River, then up that river and northwest to Lake of the Woods. The distance is about 150 miles, through a country as yet almost entirely unsettled.

Richmond & West Point Terminal.—This company gives notice to stockholders as follows:

"As under the rule of the New York Stock Exchange, requiring 30 days' notice, the new stock proposed to be issued under the circular of April 4 will not be a good delivery before May 5, the board of directors, at the request of stockholders, have postponed the closing of the books until that date. The books of the company will accordingly be closed at 3 p. m., May 5, 1882, and reopened at 10 a. m., May 11. All stockholders of record at the closing of the books will be entitled to subscribe to the new stock, to the extent of double their holding, at $25 per share, under the same terms as set forth in the circular of April 4, except that the payments (with right of anticipating) will be as follows: $5 per share on or before May 11; $5, June 11; $5, July 11; $5, Aug. 11, and $5, Sept. 11."

Rochester & Pittsburgh.—Arrangements are being made to build a branch 1½ miles long from East Gainesville, N. Y., to Gainesville, to connect with the Silver Lake road.

San Luis Obispo & Santa Maria Valley.—Surveys are being made for the extension of this road from San Luis Obispo, Cal., to Santa Barbara. One line has been run by Los Alamos and Gaviota, through the Lompoc country, and another is be run by the San Marcos Pass.

Savannah, Florida & Western.—Surveys have been made for a branch from this road at Naylor, Ga., north to Milltown on the Alapaha River, a distance of about 10 miles. At Milltown there is a valuable water-power.

Securities on the New York Stock Exchange.—The following securities have been put on the lists at the New York Stock exchange:

Long Island, $5,000,000 first-consolidated 5 per cent. bonds.

New York, Lake Erie & Western, $2,500,000 prior lien 6 per cent. bonds.

Oregon Short Line, $2,500,000 first-mortgage 6 per cent. bonds.

Richmond & Danville, $4,000,000 debenture 6 per cent. bonds.

Wabash, St. Louis & Pacific, $2,000,000 additional general mortgage bonds.

Sioux City & Pacific.—This company is making arrangements to build a bridge over the Missouri River near Missouri Valley, Ia. Heretofore the transfer at this point has been made by a steam ferry.

South Pennsylvania.—This company has filed articles of incorporation for a railroad from Harrisburg, Pa., by Bedford, West Union and Connellsville to Wheeling, W. Va. It is a revival of a very old project.

Stony Clove & Catskill Mountain.—Trains on this road now run from the junction with the Ulster & Delaware at Phœnicia, N. Y., north to Stony Clove, 10 miles. Work is progressing on the extension to Hunter four miles beyond Stony Clove, and it will be completed about the end of May. Stage lines will run from Hunter to all the points of interest in the Catskills.

Texas & St. Louis.—On the Arkansas Division of this road work is progressing steadily. Grading is nearly finished from Pine Bluff southwest to the Saline River, 30 miles, and is in progress to Camden. The grading from Texarkana northeast to Camden is well advanced.

Trans-Mississippi Central.—This stupendous project is for a railroad from Omaha, Neb., to Houston, Tex., 1,050 miles, the line to run through Jefferson City and Little Rock. Possibly it is to be a branch of Helper's Two Americas Railway.

Union Pacific.—The report that work on the Oregon Short Line was to be stopped is contradicted by authority.

United States Rolling Stock Company.—The chairman of the London committee has issued a circular to the shareholders, in which he announces his intention of retiring when the committee shall have been reconstituted. Mr. Douglas says:

"When I entered my present position—not the less arduous or responsible that I and all the committee were receiving no payment—the situation was deplorable. Then you were persistently threatened with bankruptcy and winding-up. Serious questions had arisen, involving hundreds of thousands of pounds, and causing long and difficult litigations. Much of your plant was broad-gauge, and, therefore, could only be used by two railways, both at the time insolvent. One-fourth of your capital was in locomotives—a sort of property which no prudent person would own for hiring out. You had £144,000 in oil tank cars, since superseded by the pipe lines, and £110,000 in passenger carriages, which also are quite unsuitable for hiring out. These three bad investments absorbed one-third of your capital. You had no workshops or tools even to repair your plant, nor sheds, or sidings, to hold any that might be out of lease. You had spent over five millions of dollars on your plant, ill-assorted as it was, and the price of your shares was about £10, or £500,000 for your million of capital; the price afterwards went much lower as the difficulties became more felt. Now all your questions and litigations are settled, after recovering large sums. All your plant is of the ordinary gauge. Your unsuitable plant is all got rid of, except one baggage car and about one-fifth part of the locomotives. Instead, you have about 1,000 additional good cars. The cost of plant is written down to a little over four million dollars. For the other million of your capital you have full and good value in your extensive works and property at Chicago and Urbana, for building, repairing, and storing plant, and in some other minor assets. Your dividends, which ceased as soon as your plant was completed, were cautiously resumed, and have steadily advanced to 6 per cent. A large part of your original good cars have been parted with, and about 1,400 of your present cars are recently built, new, and cost much less than the original stock. Your capital account was and has remained closed, and your shares have been selling for some time at about £18 10s. and upwards, or £925,000 for your million of capital, an improvement of £425,000, and it was much more from the lowest point."

Utica, Ithaca & Elmira.—Certain stockholders of this company have obtained a temporary injunction to restrain the President and directors from leasing the road. It is claimed that the management is endeavoring to control the road in the interest of another corporation, to the detriment of the stockholders.

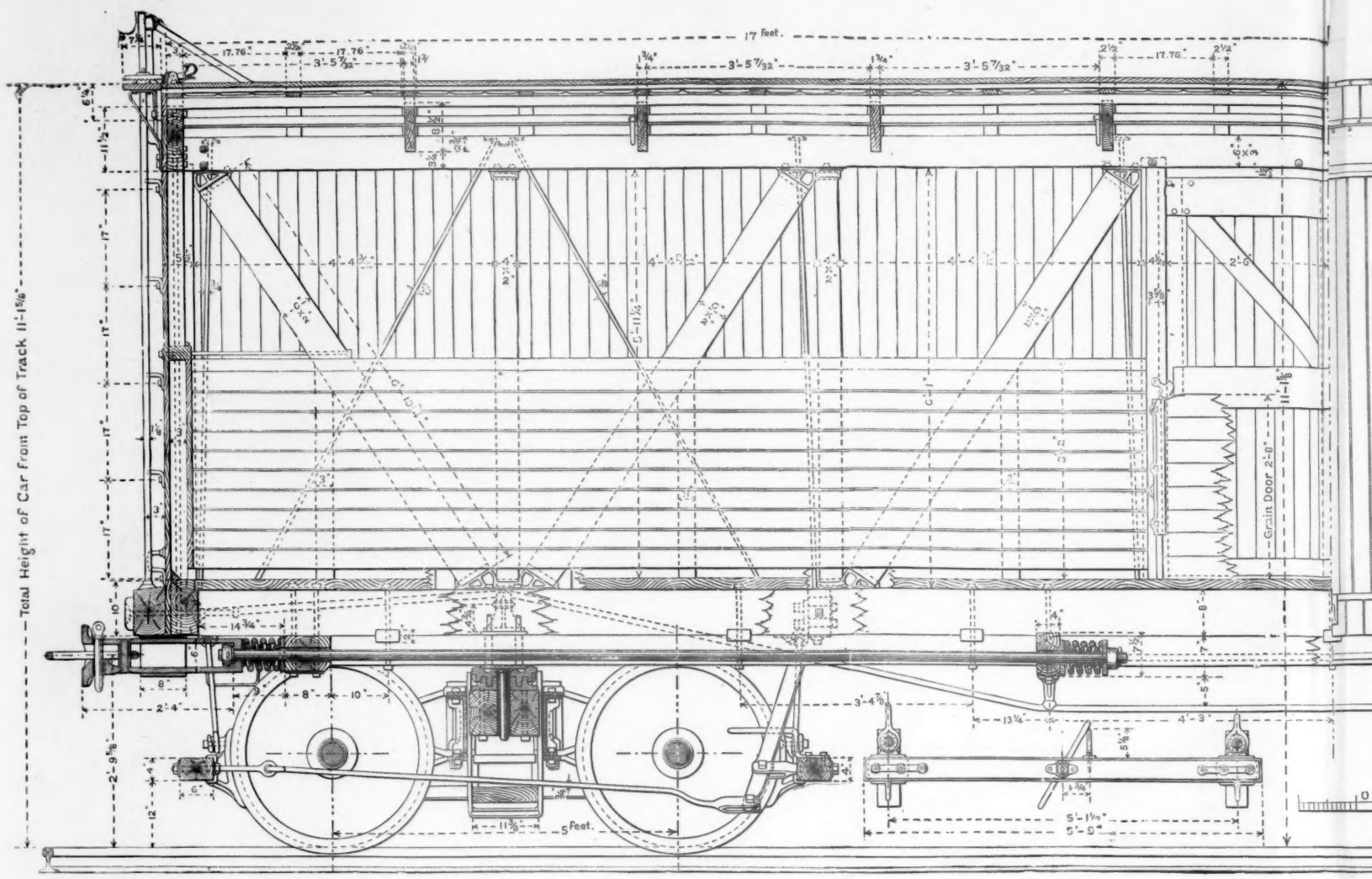
Vicksburg & Memphis.—It is stated that the stock of this company, which has no completed road, has been sold to R. T. Wilson, of New York. Mr. Wilson is largely interested in the East Tennessee road.

Warren & Farnsworth.—This company has filed articles of incorporation for a narrow-gauge road from Clarendon, Warren County, Pa., to Tionesta in Forest County. The distance is 12 miles and the capital stock is fixed at $75,000.

West Jersey.—The second track on this road is now completed from Camden, N. J., to Glassboro, 18 miles, over the section where the local traffic is heaviest. The road has been generally much improved, and is being put in order for the summer business.

Wilmington & Weldon.—Track is now laid on the Scotland Neck Branch from Halifax, N. C., southeast to Scotland Neck, 19 miles. The contractor has still some work to do in finishing up and ditching the road, but it will probably be opened for business very soon.

Wisconsin, Iowa & Nebraska.—A company by this name is making surveys for a line across Iowa from Dubuque southwest to Nebraska City, and announces that work will soon be begun on the section between Des Moines and Marshalltown. The project includes extensions eastward across Wisconsin to Lake Michigan, and from Nebraska City southwest to some point not yet selected.



Longitudinal Section.

34 ft.

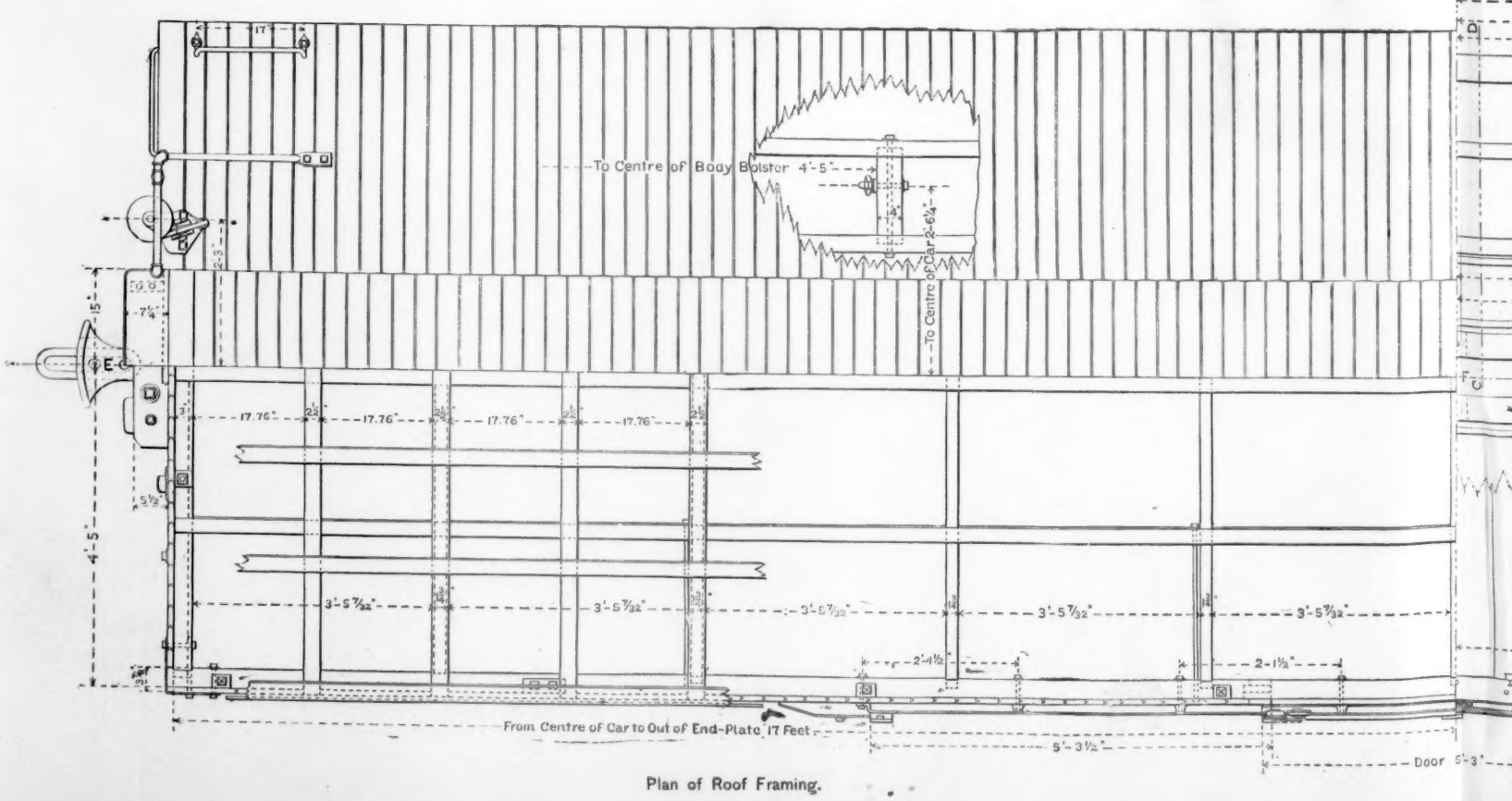
STANDARD B

FOR

NEW YORK CENTRAL & HUDSON RIVER RAILR

Leander Garey, Superintendant o

Plan of Roof.



Plan of Roof Framing.

Scale.

0 1 2 3 4 5 6 7Ft.

34 ft.

Side Elevation.

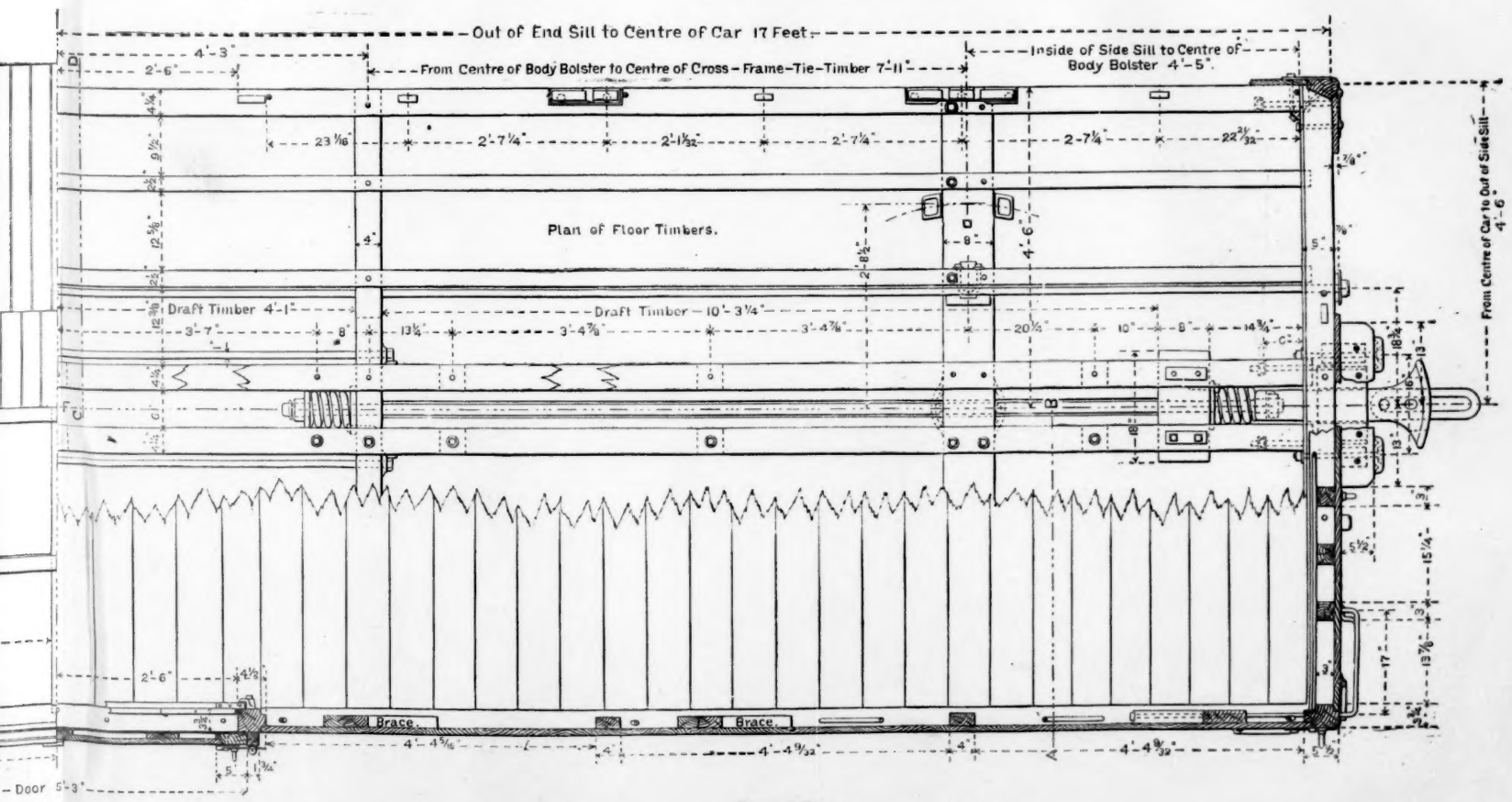
ARD BOX-CAR

FOR

RIVER RAILROAD AND ITS CONNECTING LINES.

Superintendant of Car Department.

Plan of Floor Framing.


Out of End Sill to Centre of Car 17 Feet
Inside of Side Sill to Centre of Body Bolster 4'-5".
From Centre of Body Bolster to Centre of Cross-Frame-Tie-Timber 7'-11"
Plan of Floor Timbers.
Draft Timber 4'-1"
Draft Timber — 10'-3¼"
From Centre of Car to Out of Side Sill 4'-6"
Brace.
Brace.
Door 5'-3"

Plan of Floor